ELEMENTARY
CORE Academy
UTAH STATE OFFICE OF EDUCATION & UTAH STATE UNIVERSITY

ELEMENTARY CORE ACADEMY • ELEMENTARY CORE ACADEMY •

1ST GRADE

PARTICIPANT HANDBOOK
2004

UTAH STATE OFFICE OF EDUCATION

UtahState UNIVERSITY

ELEMENTARY CORE ACADEMY

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Dear CORE Academy Teachers:

Involvement in the CORE Academy represents a significant investment by you, your school, and district in educational excellence for the students of Utah. The goal of the Academy is to provide a high quality opportunity for teachers to engage in meaningful professional growth.

The Academy will help you gain expertise in the collection and use of accurate data and analysis of each student's level of achievement, teach sound instructional methods specifically aligned to the state Core Curriculum, and provide an opportunity for collegial support.

I commend you for your dedication and willingness to engage in meaningful professional development. It is my belief that educators care deeply about their students and work hard to create successful experiences in the classroom. Despite some challenges facing our schools, dedicated and professional educators make profound differences each day.

Sincerely,

Patrick Ogden
Interim State Superintendent
of Public Instruction

Funding Sources

Appreciation is expressed for the tremendous educational input and monetary commitment of several organizations for the successful delivery of the Elementary CORE Academy. This year's Elementary CORE Academy was developed and funded through a variety of sources. The Utah State Office of Education (USOE), in collaboration with Utah State University (USU) and local school districts of Utah, have supported kindergarten through sixth grade teachers with professional development experiences that will enhance the educational experience for Utah children.

Major funding for the Academy comes from the following sources:

Federal/State Funds:

Utah State Office of Education
Staff Development Funds
Special Education Services Unit

ESEA Title II

Utah Math Science Partnership

WestED Eisenhower Regional Consortium

District Funds:

Various sources including Quality Teacher Block, Federal ESEA Title II, and District Professional Development Funds

School Funds:

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Utah State Office of Education Special Education Services

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Additionally, numerous school districts, individual schools, and principals in Utah have sponsored teachers to attend the Academy. Other educational groups such as the Utah Division of Water Resources, National Energy Foundation, Utah Energy Office, and the Utah Mining Association have assisted in the development and delivery of resources in the Academy.

Most important is the thousands of teachers who take time from their summer to attend these professional development workshops. It is these teachers who make this program possible.

Goals of the Elementary CORE Academy

Overall

The purpose of the Elementary CORE Academy is to create high quality teacher instruction and improve student achievement through the delivery of professional development opportunities and experiences for teachers across Utah.

The Academy will provide elementary teachers in Utah with:

1. Models of exemplary and innovative instructional strategies, tools, and resources to meet newly adopted Core Curriculum standards, objectives, and indicators.
2. Practical models and diverse methods of meeting the learning needs of all children, with instruction implementation aligned to the Core Curriculum.
3. Meaningful opportunities for collaboration, self-reflection, and peer discussion specific to innovative and effective instructional techniques, materials, teaching strategies, and professional practices in order to improve classroom instruction.

Learning a limited set of facts will no longer prepare a student for real experiences encountered in today's world. It is imperative that educators have continued opportunities to obtain instructional skills and strategies that provide methods of meeting the needs of all students. Participants of the Academy experience will be better equipped to meet the challenges faced in today's classrooms.

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First Grade
Core Curriculum

K-2 Core Curriculum

Introduction

Most students enter school confident in their own abilities; they are curious and eager to learn more. They make sense of the world by reasoning and problem solving. Young students are active, resourceful individuals who construct, modify, and integrate ideas by interacting with the physical world as well as with peers and adults. They learn by doing, collaborating, and sharing their ideas. Students' abilities to communicate through language, pictures, sound, movement, and other symbolic means develop rapidly during these years.

- **Young children learn by doing, collaborating, and sharing their ideas.**

Literacy requires an understanding of listening, speaking, reading, writing, and viewing in many forms including print and electronic images. Today, more than ever, students must have the ability to think critically while applying new information to existing knowledge. Therefore, school literacy programs need to involve students in learning to read and write in situations that foster critical thinking and the use of literacy for independent learning in all content areas.

Young students are building beliefs about what mathematics is, about what it means to know and do mathematics, and about themselves as mathematical learners. Mathematics instruction needs to include more than short-term learning of rote procedures. Students must use technology and other mathematical tools, such as manipulative materials, to develop conceptual understanding and solve problems as they do mathematics. Students, as mathematicians, learn best with hands-on, active experiences throughout the instruction of the mathematics curriculum.

Language Arts and Mathematics are the tools for doing work in other areas. These content areas need to be integrated into other curriculum areas to provide students with optimal learning. The curriculum becomes more relevant when content areas are connected rather than taught in strict isolation. For this reason, the content areas of the Fine Arts, Health Education, Physical Education, Science, and Social Studies have been combined to enable teachers to teach more efficiently and students to learn in a real-life context that enhances lifelong learning.

The Kindergarten through Second Grade Core describes what students should know and be able to do at the end of each of the kindergarten, first, and second grade levels. It has been developed, critiqued, and revised by a community of Utah teachers, university

educators, State Office of Education specialists, and an advisory committee representing a wide variety of people from the community. The Core reflects the current philosophy of education that is expressed in national documents developed by the International Reading Association, National Council of the Teachers of Mathematics, National Standards for Arts Education, Information Power, National Association for Sport and Physical Education, American Association for the Advancement of Science, National Council for the Social Studies, International Society for Technology and Education, and Early Childhood Standards.

Organization of the K-2 Core:

- **Intended Learning Outcomes**
- **Standard**
- **Objective**
- **Indicator**

Organization of the K-2 Core

The Core is designed to help teachers organize and deliver instruction.

- Each grade level begins with a brief course description.
- The Kindergarten, First, and Second Grade INTENDED LEARNING OUTCOMES describe the goals for students to gain knowledge and understand their world. They are found at the beginning of each grade level, are an integral part of the Core, and should be included as part of instruction.
- The first Core area consists of the Language Arts curriculum.
- The second Core area consists of the Mathematics curriculum.
- The third Core area consists of the subject areas of the Fine Arts, Health Education, Physical Education, Science, and Social Studies.
- A STANDARD is a broad statement of what students are expected to understand. Several Objectives are listed under each Standard.
- An OBJECTIVE is a more focused description of what students need to know and be able to do at the completion of instruction. If students have mastered the Objectives associated with a given Standard, they have mastered that Standard at that grade level. Several Indicators are described for each Objective.
- An INDICATOR is a measurable or observable student action that enables one to assess whether a student has mastered a particular Objective. Indicators are not meant to be classroom activities, but they can help guide classroom instruction.

Guidelines Used in Developing the K-2 Core

The Core is:

Consistent With the Nature of Learning

The main intent in the early grades is for students to value learning and develop the skills to gain knowledge and understand their world. The Core is designed to produce an integrated set of Kindergarten, First, and Second Grade Intended Learning Outcomes for students, with specific goals in all content areas.

Coherent

The Core has been designed so that, wherever possible, the ideas taught within a particular grade level have a logical and natural connection with each other and with those of earlier grades. Efforts have also been made to select topics and skills that integrate well with one another appropriate to grade level. In addition, there is an upward articulation of concepts, skills, and content. This spiraling is intended to prepare students to understand and use more complex concepts and skills as they advance through the learning process.

Developmentally Appropriate

The Core takes into account the psychological and social readiness of students. It builds from concrete experiences to more abstract understandings. The Core focuses on providing experiences with concepts that students can explore and understand in depth to build the foundation for future learning experiences.

Reflective of Successful Teaching Practices

Learning through play, movement, and adventure is critical to the early development of the mind and body. The Core emphasizes student exploration. The Kindergarten, First, and Second Grade Intended Learning Outcomes are central in each standard. The Core is designed to encourage instruction with students working in cooperative groups. Instruction should recognize the importance of each Core area in the classroom, school, and community.

Comprehensive

The Kindergarten, First, and Second Grade Core does not cover all topics that have traditionally been in the Kindergarten, First, and Second Grade curriculum; however, it provides a basic foundation of knowledge and skills in all content areas. By emphasizing depth rather than breadth, the Core seeks to empower students rather than intimidate them with a collection of

- **By emphasizing depth rather than breadth, the Core seeks to empower students.**

isolated and eminently forgettable facts. Teachers are free to add related concepts and skills, but they are expected to teach all the standards and objectives specified in the Core for their grade level.

Feasible

Teachers and others who are familiar with Utah students, classrooms, teachers, and schools have designed the Core. It can be taught with easily obtained resources and materials. A Teacher Handbook is also available for teachers and has sample lessons on each topic for each grade level. The Teacher Handbook is a document that will grow as teachers add exemplary lessons aligned with the new Core.

- **Student achievement of the standards and objectives in this Core is best assessed using a variety of assessment instruments.**

Useful and Relevant

This curriculum relates directly to student needs and interests. Relevance of content areas to other endeavors enables students to transfer skills gained from one area of instruction into their other school subjects and into their lives outside the classroom.

Reliant Upon Effective Assessment Practices

Student achievement of the standards and objectives in this Core is best assessed using a variety of assessment instruments. Performance tests are particularly appropriate to evaluate student mastery of thinking processes and problem-solving skills. A variety of classroom assessment approaches should be used by teachers in conjunction with the Criterion Referenced Tests (CRT) that are administered to first and second grade students in Language Arts and Mathematics, and with the pre- and post-tests administered in kindergarten. Observation of students engaged in instructional activities is highly recommended as a way to assess students' skills as well as attitudes toward learning. The nature of the questions posed by students provides important evidence of their understanding.

Engaging

In the early grades, children are forming attitudes and habits for learning. It is important that instruction maximizes students' potential and gives them understanding of the intertwined nature of learning. Effective elementary instruction engages students actively in enjoyable learning experiences. Instruction should be as thrilling an experience for a child as seeing a rainbow, growing a flower, or describing a toad. In a world of rapidly expanding knowledge and technology, all students must gain the skills they will need to understand and function responsibly and successfully in the world. The Core provides skills in a context that enables students to experience the joy of learning.

K-2 Intended Learning Outcomes

The main intent at the early grades is for students to value learning and develop the skills to gain knowledge and understand their world.

The Intended Learning Outcomes described below reflect the belief that kindergarten, first, and second grade education should address the intellectual, social, emotional, physical, and ethical development of children. While the Kindergarten, First, and Second Grade Core Curriculum focuses primarily on content and the intellectual development of children, it is important to create a classroom culture that fosters development of many aspects of a person. By nurturing development in these interrelated human domains, young people will be healthy and discover varied and exciting talents and dreams. They will be socially and civically competent and able to express themselves effectively.

The outcomes identified below are to provide a direction for general classroom instruction, management, culture, environment, and inclusion. These outcomes should be interwoven throughout the Kindergarten, First, and Second Grade Core Curriculum, which offers more specific and measurable standards for instruction.

- **Intended learning outcomes provide a direction for general classroom instruction, management, culture, environment, and inclusion.**

Beginning in kindergarten and by the end of second grade students will be able to:

1. **Demonstrate a positive learning attitude.**
   a. Display a sense of curiosity.
   b. Practice personal responsibility for learning.
   c. Demonstrate persistence in completing tasks.
   d. Apply prior knowledge and processes to construct new knowledge.
   e. Voluntarily use a variety of resources to investigate topics of interest.
2. **Develop social skills and ethical responsibility.**
   a. Respect similarities and differences in others.
   b. Treat others with kindness and fairness.
   c. Follow classroom and school rules.
   d. Include others in learning and play activities.
   e. Participate with others when making decisions and solving problems.
   f. Function positively as a member of a family, class, school, and community.

3. **Demonstrate responsible emotional and cognitive behaviors.**
   a. Recognize own values, talents, and skills.
   b. Express self in positive ways.
   c. Demonstrate aesthetic awareness.
   d. Demonstrate appropriate behavior.
   e. Express feelings appropriately.
   f. Meet and respect needs of self and others.
4. **Develop physical skills and personal hygiene.**
   a. Respect physical similarities and differences in self and others.
   b. Learn proper care of the body for health and fitness.
   c. Develop knowledge that enhances participation in physical activities.
   d. Display persistence in learning motor skills and developing fitness.
   e. Use physical activity for self-expression.
5. **Understand and use basic concepts and skills.**
   a. Develop phonological and phonemic awareness.
   b. Decode, read, and comprehend written text and symbols.
   c. Develop vocabulary.
   d. Develop reasoning and sequencing skills.
   e. Demonstrate problem-solving skills.
   f. Observe, sort, and classify objects.
   g. Make and interpret representations, graphs, and models.
   h. Recognize how content ideas interconnect.
   i. Make connections from content areas to application in real life.
6. **Communicate clearly in oral, artistic, written, and nonverbal form.**
   a. Share ideas using communication skills.
   b. Predict an event or outcome based on evidence.
   c. Use appropriate language to describe events, objects, people, ideas, and emotions.
   d. Listen attentively and respond to communication.
   e. Use mathematical concepts to communicate ideas.
   f. Use visual art, dance, drama, and music to communicate.

The First Grade Core Curriculum

First grade core concepts should be integrated across all curriculum areas. Reading, writing, and mathematical skills should be emphasized as integral to the instruction in all other areas. Personal relevance of content is always an important part of helping students to value learning and should be emphasized.

In first grade, students are immersed in a literature-rich environment to develop an awareness of phonemes and print materials as sources of information and enjoyment. They listen and speak to participate in classroom discussions and use a variety of strategies to read new words and familiar selections aloud with fluency and expression. Understanding the main idea and sequence of events in a story are important comprehension skills that are applied in all other content areas.

- **Reading, writing, and mathematical skills should be emphasized as integral to the instruction in all other areas.**

First graders continue their development of number sense. They learn basic addition and subtraction facts through joining and separating sets with twelve or fewer objects. Students draw and describe specified two-dimensional figures and use nonstandard units to measure length and weight. They are introduced to the idea of fractions and continue the development of sorting and patterning skills. While learning mathematics, students will be actively engaged, using concrete materials and appropriate technologies such as calculators and computers.

In first grade, students learn about themselves and their relationship to the classroom, school, family, and community. Students develop the skills of questioning, gathering information, making measurements using nonstandard units, constructing explanations, and drawing conclusions. Students learn about their bodies and the behaviors necessary to protect them and keep them healthy. They learn basic body control while beginning to develop motor skills and moving in a variety of settings. Students become aware of strength, endurance, and flexibility in different parts of their bodies. They express their thoughts and ideas creatively, while challenging their imagination, fostering reflective thinking, and developing disciplined effort and problem-solving skills.

First Grade Language Arts Core Curriculum

Standard I:
***Oral Language*—Students develop language for the purpose of effectively communicating through listening, speaking, viewing, and presenting.**

Standard I: ***Oral Language*—Students develop language for the purpose of effectively communicating through listening, speaking, viewing, and presenting.**

Objective 1: Develop language through listening and speaking.

a. Identify specific purpose(s) for listening (e.g., to gain information, to be entertained).

b. Listen and demonstrate understanding by responding appropriately (e.g., follow multiple-step directions, restate, clarify, question).

c. Speak clearly and audibly with expression in communicating ideas.

d. Speak in complete sentences.

Objective 2: Develop language through viewing media and presenting.

a. Identify specific purpose(s) for viewing media (i.e., to identify main idea and details, to gain information, distinguish between fiction/nonfiction).

b. Use a variety of formats (e.g., show and tell, drama, sharing of books and personal writings, choral readings, informational reports, retelling experiences and stories in sequence) in presenting with various forms of media.

Standard II: ***Concepts of Print*—Students develop an understanding of how printed language works.**

Objective 1: Demonstrate an understanding that print carries "the" message.

a. Recognize that print carries different messages.

b. Identify messages in common environmental print (e.g., signs, boxes, wrappers).

Objective 2: Demonstrate knowledge of elements of print within a text.

a. Discriminate between letters, words, and sentences in text.

b. Match oral words to printed words while reading.

c. Identify punctuation in text (i.e., periods, question marks, and exclamation points).

Standard II: ***Concepts of Print*—Students develop an understanding of how printed language works.**

Standard III: ***Phonological and Phonemic Awareness*—Students develop phonological and phonemic awareness.**

Objective 1: Demonstrate phonological awareness.

a. Count the number of syllables in words.

b. Count the number of syllables in a first name.

Objective 2: Recognize like and unlike word parts (oddity tasks).

a. Identify words with same beginning consonant sounds (e.g., man, sat, sick) and ending consonant sounds (e.g., man, sat, ten) in a series of words.

b. Identify words with same medial sounds in a series of words (e.g., long vowel sound: take, late, feet; short vowel sound: top, cat, pan; middle consonant sound: kitten, missing, lesson).

Objective 3: Orally blend word parts (blending).

a. Blend syllables to make words (e.g., /ta/…/ble/, table).

b. Blend onset and rime to make words (e.g., /p/…/an/, pan).

c. Blend individual phonemes to make words (e.g., /s/ /a/ /t/, sat).

Objective 4: Orally segment words into word parts (segmenting).

a. Segment words into syllables (e.g., table, /ta/…/ble/).

b. Segment words into onset and rime (e.g., pan, /p/…/an/).

c. Segment words into individual phonemes (e.g., sat, /s/…/a/…/t/).

Objective 5: Orally manipulate phonemes in words and syllables (manipulation).

a. Substitute initial and final sound (e.g., replace first sound in mat to /s/, say sat; replace last sound in mat with /p/, say map).

b. Substitute vowel in words (e.g., replace middle sound in map to /o/, say mop).

c. Delete syllable in words (e.g., say baker without the /ba/, say ker).

d. Deletes initial and final sounds in words (e.g., say sun without the /s/, say un; say hit without the /t/, say hi).

e. Delete initial phoneme and final phoneme in blends (e.g., say step without the /s/, say tep; say best without the /t/, say bes).

Standard III: ***Phonological and Phonemic Awareness*— Students develop phonological and phonemic awareness.**

Standard IV: ***Phonics and Spelling*—Students use phonics and other strategies to decode and spell unfamiliar words while reading and writing.**

Objective 1: Demonstrate an understanding of the relationship between letters and sounds.

a. Write letters to represent spoken sounds of all letters of the alphabet in random order.

b. Identify and pronounce sounds for consonants, consonant blends (e.g., br, st, fl) and consonant digraphs (e.g., ch, sh, wh, th) accurately in words.

c. Identify and pronounce sounds for short and long vowels, using patterns (e.g., vc, vcv, cvc, cvvc, cvcv, cvc-silent e), and vowel digraphs (e.g., ea, ee, ie, oa, ai, ay, oo, ow) accurately in words.

d. Identify and pronounce sounds for r–controlled vowels accurately in one-syllable words (e.g., ar, or, er).

e. Identify and blend initial letter sounds with common vowel patterns to pronounce one-syllable words (e.g., /g/…/oa/…/t/, goat).

Objective 2: Use knowledge of structural analysis to decode words.

a. Identify and read grade level contractions and compound words.

b. Identify sound patterns and apply knowledge to decode one-syllable words (e.g., blends, digraphs, vowel patterns, r-controlled vowels).

c. Demonstrate an understanding of representing same sound with different patterns by decoding these patterns accurately in one-syllable words (e.g., ee, ie, ea, e).

d. Use knowledge of root words and suffixes to decode words (i.e., -ful, -ly, -er).

e. Use letter patterns to decode words (e.g., phonograms/word families/onset and rime: -ack, -ail, -ake).

Objective 3: Spell words correctly.

a. Write sounds heard in words in the correct order.

b. Hear and write beginning, middle, and ending consonant sounds to spell one-syllable words.

c. Spell short vowel words with consonant blends and digraphs (e.g., bl, st, nt, sh, wh, th).

Standard IV: ***Phonics and Spelling*—Students use phonics and other strategies to decode and spell unfamiliar words while reading and writing.**

d. Spell an increasing number of grade level high-frequency and irregular words correctly (e.g., bear, gone, could).

e. Learn the spellings of irregular and difficult words (e.g., river, house, animal).

Objective 4: Use spelling strategies to achieve accuracy (e.g., prediction, visualization, association).

a. Use knowledge about spelling to predict the spelling of new words.

b. Associate the spelling of new words with that of known words and word patterns.

c. Use spelling generalities to assist spelling of new words (e.g., one vowel between two consonants, silent "e" on the end of a word, two vowels together).

Standard V: ***Fluency*—Students develop reading fluency to read aloud grade level text effortlessly without hesitation.**

Objective 1: Read aloud grade level text with appropriate speed and accuracy.

a. Read grade level text at a rate of approximately 60 wpm.

b. Read grade level text with an accuracy rate of 95-100%.

Objective 2: Read aloud grade level text effortlessly with clarity.

a. Read grade level text in three- to four-word phrases using intonation, expression, and punctuation cues.

b. Read with automaticity 100 first grade high-frequency/sight words.

Standard V: ***Fluency*—Students develop reading fluency to read aloud grade level text effortlessly without hesitation.**

Standard VI: ***Vocabulary*—Students learn and use grade level vocabulary to increase understanding and read fluently.**

Standard VI: *Vocabulary*—Students learn and use grade level vocabulary to increase understanding and read fluently.

Objective 1: Learn new words through listening and reading widely.

a. Use new vocabulary learned by listening, reading, and discussing a variety of genres.

b. Learn the meanings of a variety of grade level words (e.g., words from literature, social studies, science, math).

c. Use resources to learn new words by relating them to known words (e.g., books, charts, word walls, simple dictionaries).

Objective 2: Use multiple resources to learn new words by relating them to known words and/or concepts. See second, third, fourth, fifth, and sixth grades.

Objective 3: Use structural analysis and context clues to determine meanings of words.

a. Identify meanings of words using the root word and known endings (e.g., car, cars; jump, jumped, jumping).

b. Use context to determine meanings of unknown key words (e.g., The gigantic dog couldn't fit in his new doghouse.).

Standard VII: ***Comprehension*—Students understand, interpret, and analyze narrative and informational grade level text.**

Objective 1: Identify purposes of text.

a. Discuss purpose for reading.

b. Discuss author's purpose.

Objective 2: Apply strategies to comprehend text.

a. Relate prior knowledge to make connections to text (e.g., text to text, text to self, text to world).

b. Ask questions about text read aloud and independently.

c. Make predictions using picture clues, title, text, and/or prior knowledge.

d. Make inferences and draw conclusions from text.

e. Identify topic/main idea from text noting details.

f. Retell using important ideas/events and supporting details in sequence.

g. Compile information from text.

Objective 3: Recognize and use features of narrative and informational text.

a. Identify beginning, middle, and end; characters; setting; problem/resolution.

b. Identify different genres: nursery rhymes, fairy tales, poems, realistic fiction, fantasy, fables.

c. Identify information from pictures, captions, and diagrams.

d. Identify multiple facts in grade level informational text.

e. Locate facts from informational texts (e.g., picture books, grade level informational books).

Standard VII: ***Comprehension*—Students understand, interpret, and analyze narrative and informational grade level text.**

Standard VIII: ***Writing*—Students write daily to communicate effectively for a variety of purposes and audiences.**

Objective 1: Prepare to write by gathering and organizing information and ideas (pre-writing).

a. Generate ideas for writing by reading, discussing literature and informational text, drawing, looking at books, being read to, and reflecting on personal experiences.

b. Select topics from generated ideas.

c. Identify audience for writing.

Standard VIII: ***Writing*—Students write daily to communicate effectively for a variety of purposes and audiences.**

Objective 2: Compose a written draft.

a. Draft ideas on paper in an organized manner (e.g., beginning, middle, end) utilizing words and sentences.

b. elect appropriate words to convey meaning.

Objective 3: Revise by elaborating and clarifying a written draft.

a. Revise draft to add details.

b. Revise draft using descriptive words.

c. Write in complete sentences.

Objective 4: Edit written draft for conventions.

a. Edit writing for capitals in names, first word of a sentence, and the pronoun "I" and correct ending punctuation (i.e., periods, question marks).

b. Edit for spelling of grade level-appropriate words (e.g., would, down, made, write).

c. Edit for standard grammar (i.e., complete sentences).

d. Edit for appropriate formatting features (i.e., spacing, margins, titles).

Objective 5: Use fluent and legible handwriting to communicate.

a. Print all upper- and lower-case letters of the alphabet and numerals 0-9 using proper form, proportions, and spacing.

b. Write with increasing fluency in forming manuscript letters and numerals.

c. Produce legible documents with manuscript handwriting.

Objective 6: Write in different forms and genres.

a. Produce personal writing (e.g., journals, lists, friendly notes and letters, personal experiences, family stories, literature responses).

b. Produce traditional and imaginative stories, narrative and formula poetry as a shared writing activity.

c. Produce functional text (e.g., ABC books, lists, labels, signs, how-to books, observations).

d. Share writing with others using illustrations to add meaning to published works.

e. Publish group and individual products.

First Grade Mathematics Core Curriculum

Standard I:
Students will acquire number sense and perform simple operations with whole numbers.

Standard I: Students will acquire number sense and perform simple operations with whole numbers.

Objective 1: Represent whole numbers in a variety of ways.

a. Relate number words to the *numerals* that represent the quantities 0 to 10.

b. Sort objects into groups of tens and ones and write the numeral representing the set.

c. Represent *whole numbers* up to 100 in groups of tens and ones using objects.

d. Write a numeral when given the number of tens and ones.

e. Write a numeral to 99 in *expanded form* (e.g., 39 is 3 tens and 9 ones or 30+9).

f. Use zero to represent the number of elements in the empty set or as a placeholder in a two-digit numeral.

Objective 2: Identify simple relationships among whole numbers.

a. Identify the number that is one more or one less than any *whole number* from 1 to 99.

b. Use the vocabulary "greater than," "less than," and "equal to" when comparing sets of objects or numbers.

c. Order sets of objects and numbers from 0 to 20.

d. Use *ordinal numbers* 1st through 5th (i.e., 1st, 2nd, 3rd, 4th, 5th).

Objective 3: Model and illustrate meanings of the operations addition and subtraction and describe how they relate.

a. Demonstrate the joining and separating of sets with twelve or fewer objects and record the results with pictures or symbols.

b. Model two meanings of subtraction: separating of sets ("take away") and comparison of sets ("how many more/fewer") using objects, pictorial representations, and symbols.

c. Use correct vocabulary and symbols to describe addition (i.e., add, "and," plus, +, sum), subtraction (i.e., subtract, minus, -, take away, how many more/fewer), and equals (i.e., =, same as).

d. Use zero in addition and subtraction sentences.

Objective 4: Use fractions to identify parts of the whole.

a. Share sets of up to ten objects between two students and identify each part as half.

b. Divide geometric shapes into equal parts, identifying halves and fourths.

Objective 5: Solve whole number problems using addition and subtraction in horizontal and vertical notation.

a. Compute addition and subtraction facts to twelve.

b. Add three whole numbers with sums to twelve.

Standard II:
Students will identify and use patterns and relations to represent mathematical situations.

Standard II: Students will identify and use patterns and relations to represent mathematical situations.

Objective 1: Recognize and represent patterns with one or two attributes.

a. Sort and classify objects by one or two *attributes*.

b. Identify, create, and label simple patterns using manipulatives, pictures, and symbolic notation (e.g., ABAB . . ., □ ○ △ □ ○ △ . . .).

c. Identify patterns in the environment.

d. Identify horizontal and vertical patterns on hundreds charts.

e. Use patterns to establish skip counting by twos to 20 and by fives and tens to 100.

f. Count backward from 10 to 0 and identify the pattern.

Objective 2: Recognize and represent relations using mathematical symbols.

a. Recognize that "=" indicates a relationship in which the quantities on each side of an equation are equal.

b. Recognize that symbols such as □, △, or ◇ in an addition or subtraction equation represent a missing value that will make the statement true (e.g., □ + 3 = 6, 5 +7 = △, 4 = 5 – ◇).

c. Demonstrate that changing the order of *addends* does not change the *sum* (e.g., 3+2=5 and 2+3=5).

Standard III: Students will describe, identify, and create simple geometric shapes and describe spatial relationships.

Objective 1: Describe, identify, and create simple geometric shapes.

a. Identify, name, draw, create, and sort circles, triangles, rectangles, and squares.

b. Identify circles, triangles, rectangles, and squares in the students' environment.

c. Recognize that combining simple geometric shapes can create more complex geometric shapes.

Objective 2: Describe simple spatial relationships.

a. Use and demonstrate words to describe position (i.e., between, before, after, middle, left, right).

b. Use and demonstrate words to describe distance (i.e., closer, farther).

Standard III: Students will describe, identify, and create simple geometric shapes and describe spatial relationships.

Standard IV:
Students will understand and use simple measurement tools and techniques.

Standard IV: Students will understand and use simple measurement tools and techniques.

Objective 1: Identify measurable attributes of objects and units of measurement.

a. Identify the appropriate tools for measuring length, weight, volume, temperature, and time.

b. Identify the values of a penny, nickel, dime, and quarter.

c. Estimate the length of an object by comparing to a nonstandard unit (e.g., How many new pencils wide is your desk?).

Objective 2: Use appropriate techniques and tools to determine measurements.

a. Compare objects, using nonstandard units, according to their length, weight, or capacity (e.g., pencils/length, books/weight, boxes/volume).

b. Read and tell time to the nearest hour.

c. Name the days of the week, months of the year, and seasons in order.

d. Determine the value of a set of the same coins that total 25¢ or less (e.g., a set of 14 pennies equals 14¢, a set of 5 nickels equals 25¢, a set of 2 dimes equals 20¢).

Standard V: Students will collect and draw conclusions from data and understand basic concepts of probability.

Objective 1: Collect, organize, and display simple data.

a. Collect physical objects to use as data.

b. Collect, represent, and interpret data using tables, tally marks, *pictographs*, and bar graphs.

Objective 2: Determine the likelihood of an event.

a. Compare events to decide which are more likely, less likely, and equally likely.

b. Relate past events to future events (e.g., The sun set about 6:00 last night, so it will set about the same time tonight).

Standard V: Students will collect and draw conclusions from data and understand basic concepts of probability.

First Grade Fine Arts, Health, Physical Education, Science, and Social Studies Core Curriculum

Standard I: Students will develop a sense of self.

Objective 1: Describe and practice responsible behaviors for health and safety.

a. Practice appropriate personal hygiene (e.g., bathe, wash hands, clean clothes).

b. Describe the benefits of eating a variety of nutritious foods.

c. Describe the benefits of physical activity.

d. Describe substances that are helpful and harmful to the body.

e. Practice basic safety and identify hazards.

Objective 2: Develop and demonstrate skills in gross and fine motor movement.

a. Participate daily in short periods of physical activity that require exertion (e.g., one to three* minutes of walking, jogging, jump roping).

b. Perform fundamental locomotor (e.g., skip, gallop, run) and nonlocomotor (twist, stretch, balance) skills with mature form.

c. Develop manipulative skills (e.g., cut, glue, throw, catch, kick, strike).

d. Create and perform unique dance movements and sequences that strengthen skills while demonstrating personal and spatial awareness.

Objective 3: Develop and use skills to communicate ideas, information, and feelings.

a. Recognize and express feelings in a variety of ways (e.g., draw, paint, tell stories, dance, sing).

b. Express how colors, values, and sizes have been controlled in artworks to create mood, tell stories, or celebrate events.

c. Sing a melody independently, with developing accuracy and a natural voice that is free from strain.

d. Create simple rhythm, movement, and melody patterns with body percussion and instruments.

* Some students may not be able to sustain activity for one minute due to various medical concerns.

Standard I: Students will develop a sense of self.

Standard II:
Students will develop a sense of self in relation to families and community.

Standard II: Students will develop a sense of self in relation to families and community.

Objective 1: Describe behaviors that influence relationships with family and friends.

a. Explain how family members support each other.

b. Describe tasks at home and school.

c. Explain how families change over time.

d. Recognize that choices have consequences which affect self, peers, and family.

e. Describe behaviors that initiate and maintain friendships.

Objective 2: Describe important aspects of the community and culture that strengthen relationships.

a. Practice democratic processes (e.g., follow family and classroom rules, take turns, listen to others, share ideas).

b. Describe physical features surrounding the home, school, and community.

c. Identify changes in the school and neighborhood over time.

d. Identify and use technology in your home, school, and community (e.g., computer, TV, radio).

e. Show respect for state and national symbols and patriotic traditions; recite the Pledge of Allegiance.

Objective 3: Express relationships in a variety of ways.

a. Describe traditions, music, dances, artwork, poems, rhymes, and stories that distinguish cultures.

b. Develop dramatic storytelling skills through flexibility in movement and voice, accurate sequencing, and listening and responding to others.

c. Create and perform/exhibit dances, visual art, music, and dramatic stories from a variety of cultures expressing the relationship between people and their culture.

Standard III: Students will develop an understanding of their environment.

Objective 1: Investigate plants and plant growth.

a. Observe and draw pictures of plants.

b. Compare seeds of plants and describe ways they may be carried through the environment (e.g., wind, water, animals).

c. Observe and describe plants as they grow from seeds.

d. Identify how people use plants (e.g., food, clothing, paper, shelter).

e. Investigate and report conditions that affect plant growth.

Objective 2: Investigate water and interactions with water.

a. Observe and measure characteristics of water as a solid and liquid.

b. Compare objects that float and sink in water.

c. Measure and predict the motion of objects in water.

d. Describe how plants and people need, use, and receive water.

Objective 3: Demonstrate how symbols and models are used to represent features of the environment.

a. Use map skills to identify features of the neighborhood and community.

b. Create representations that show size relationships among objects of the home, classroom, school, or playground.

c. Identify map and globe symbols (e.g., cardinal directions, compass rose, mountains, rivers, lakes).

d. Locate continents and oceans on a map or globe (i.e., North America, Antarctica, Australia, Pacific Ocean, Atlantic Ocean).

Standard III: Students will develop an understanding of their environment.

K-6 Elementary Mathematics Core Curriculum in Table Format

Kindergarten	1st Grade	2nd Grade	3rd Grade	4th Grade	5th Grade	6th Grade
Standard I: **Students will understand simple number concepts and relationships.**	**Standard I:** **Students will acquire number sense and perform simple operations with whole numbers.**	**Standard I:** **Students will acquire number sense and perform operations with whole numbers.**	**Standard I:** **Students will acquire number sense and perform operations with whole numbers and simple fractions.**	**Standard I:** **Students will acquire number sense and perform operations with whole numbers, simple fractions, and decimals.**	**Standard I:** **Students will acquire number sense and perform operations with whole numbers, simple fractions, and decimals.**	**Standard I:** **Students will acquire number sense and perform operations with rational numbers.**
Objective 1: **Identify and use whole numbers.** a. Relate a *numeral* to the number of objects in a set (e.g., □ □ □ = 3). b. Construct models of numbers to 10 with physical objects or manipulatives. c. Make pictorial representations of numbers to 10 (e.g., draw four circles, draw six squares). d. Recognize and write numerals from 0 to 10. e. Manipulate objects to demonstrate and describe multiple ways of representing a number (e.g., 5 can be 3 and 2 more, 5 can also be 2 and 2 and 1).	**Objective 1:** **Represent whole numbers in a variety of ways.** a. Relate number words to the *numerals* that represent the quantities 0 to 10. b. Sort objects into groups of tens and ones and write the numeral representing the set. c. Represent *whole numbers* up to 100 in groups of tens and ones using objects. d. Write a numeral when given the number of tens and ones. e. Write a numeral to 99 in *expanded form* (e.g., 39 is 3 tens and 9 ones or 30+9). f. Use zero to represent the number of elements in the empty set or as a placeholder in a two-digit numeral.	**Objective 1:** **Represent whole numbers in a variety of ways.** a. Relate number words to the *numerals* that represent the quantities 0-100. b. Represent *whole numbers* up to 1,000 in groups of hundreds, tens, and ones using base ten models, and write the numeral representing the set. c. Read and write a three-digit numeral, relating it to a set of objects and a pictorial representation. d. Write a numeral to 999 in *expanded form* (e.g., 539 is 5 hundreds, 3 tens, 9 ones or 500+30+9). e. Identify the place and the value of a given digit in a three-digit numeral (e.g., the two in 281 means 2 hundreds or 200). f. Demonstrate multiple ways to represent numbers using symbolic representations (e.g., thirty is the same as two groups of 15, the number of pennies in three dimes, or 58-28).	**Objective 1:** **Represent whole numbers in a variety of ways.** a. Model, read, and write *whole numbers* up to 10,000 using base ten models, pictures, and symbols. b. Write a *numeral* when given the number of thousands, hundreds, tens, and ones. c. Write a number up to 9,999 in expanded form (e.g., 6,539 is 6 thousands, 5 hundreds, 3 tens, 9 ones or 6000+500+30+9). d. Identify the place and the value of a given digit in a four-digit numeral. e. Demonstrate multiple ways to represent numbers using models and symbolic representations (e.g., fifty is the same as two groups of 25, the number of pennies in five dimes, or 75-25).	**Objective 1:** **Represent whole numbers and decimals in a variety of ways.** a. Model, read, and write numerals from tenths to 100,000. b. Write a *whole number* up to 99,999 in *expanded form* (e.g., 76,539 is 7 ten-thousands, 6 one-thousands, 5 hundreds, 3 tens, 9 ones or 70,000+6,000+500+30+9). c. Identify the place and the value of a given digit in a five-digit numeral, including decimals to tenths. d. Demonstrate multiple ways to represent numbers by using models and symbolic representations (e.g., 36 is the same as the square of six, three dozen, or 9x4). e. Identify *square numbers* using models.	**Objective 1:** **Represent whole numbers and decimals in a variety of ways.** a. Model, read, and write numerals from hundredths to one millions. b. Write a *whole number* up to 999,999 in *expanded form* (e.g., 876,539 = 8 hundred-thousands, 7 ten-thousands, 6 thousands, 5 hundreds, 3 tens, 9 ones or 8x100,000 + 7x10,000 + 6x1,000 + 5x100 + 3x10 + 9). c. Demonstrate multiple ways to represent whole numbers by using models and symbolic representations (e.g., 108=2x50+8; 108=10^2 + 8). d. Classify whole numbers from 2 to 20 as *prime* or *composite* and 0 and 1 as neither prime nor composite, using models. e. Represent repeated factors using *exponents* up to three (e.g., 8=2x2x2=2^3).	**Objective 1:** **Represent whole numbers and decimals in a variety of ways.** a. Change *whole numbers* with *exponents* to *standard form* (e.g., 2^4 = 2^4=16) and recognize that 10^0 = 1. b. Read and write *numerals* from thousandths to one billion. c. Write a whole number to 999,999 in *expanded form* using *exponents* (e.g., 876,539 = 8 x 10^5 + 7 x 10^4 + 6 x 10^3 + 5 x 10^2 + 3 x 10^1 + 9 x 10^0). d. Express numbers in *scientific notation* using positive powers of ten. e. Classify whole numbers to 100 as *prime*, *composite*, or neither. f. Determine the *prime factorization* for a whole number up to 50.

Kindergarten	1st Grade	2nd Grade	3rd Grade	4th Grade	5th Grade	6th Grade
Objective 2: Identify simple relationships among whole numbers. a. Develop strategies for *one-to-one* correspondence and keeping track of quantities. b. Compare two sets of objects to determine whether they have the same, fewer, or more elements. c. Order sets of objects from 1 to 9. d. Estimate quantities less than 10.	**Objective 2: Identify simple relationships among whole numbers.** a. Identify the number that is one more or one less than any *whole number* from 1 to 99. b. Use the vocabulary "greater than," "less than," and "equal to" when comparing sets of objects or numbers. c. Order sets of objects and numbers from 0 to 20. d. Use ordinal numbers 1st through 5th (i.e., 1st, 2nd, 3rd, 4th, 5th).	**Objective 2: Identify simple relationships among whole numbers.** a. Identify the number that is one more, one less, ten more, or ten less than any *whole number* up to 100. b. Write number sentences using the terms "greater than," "less than," or "equal to," to compare numbers. c. Order four whole numbers less than 100 from least to greatest and from greatest to least. d. Use *ordinal numbers* 1st through 10th.	**Objective 2: Identify relationships among whole numbers.** a. Use a variety of strategies to determine whether a number is even or odd. b. Identify the number that is ten more, ten less, 100 more, or 100 less than any *whole number* up to 1,000. c. Compare the relative size of numbers (e.g., 31 is large compared to 4, about half as big as 60, close to 27). d. Compare whole numbers up to four digits using the symbols <, >, and =. e. Order and compare whole numbers on a number line.	**Objective 2: Identify relationships among whole numbers and decimals.** a. Identify the number that is 100 more, 100 less, 1,000 more, or 1,000 less than any *whole number* up to 10,000. b. Compare the relative size of numbers (e.g., 100 is small compared to a million, but large compared to 5). c. Compare whole numbers up to five digits using the symbols <, >, and =. d. Identify a whole number that is between two given whole numbers. e. Order and compare whole numbers and decimals to tenths on a number line.	**Objective 2: Identify relationships among whole numbers, fractions, decimals, and percents.** a. Order and compare *whole numbers*, fractions (including mixed numbers), and decimals using a variety of methods and symbols. b. Rewrite mixed numbers and improper fractions from one form to the other. c. Find the least common denominator for two fractions. d. Represent commonly used fractions as decimals and percents in various ways (e.g., objects, pictures, calculators).	**Objective 2: Identify relationships among whole numbers, fractions (rational numbers), decimals, and percents.** a. Find the *greatest common factor* and *least common multiple* for two numbers using a variety of methods (e.g., list of multiples, prime factorization). b. Order and compare *rational numbers*, including mixed numbers, using a variety of methods and symbols. c. Locate positive rational numbers on a number line. d. Convert common fractions, decimals, and percents from one form to another (e.g., 3/4= 0.75 = 75%).

Kindergarten	1st Grade	2nd Grade	3rd Grade	4th Grade	5th Grade	6th Grade
Objective 3: **Model and illustrate meanings of the operations of addition and subtraction and describe how they relate.** a. Demonstrate the joining and separating of sets of objects to solve problems. b. Describe the joining or separating of sets with informal language when using models. c. Record pictorially the results from the joining or separating of sets.	**Objective 3:** **Model and illustrate meanings of the operations of addition and subtraction and describe how they relate.** a. Demonstrate the joining and separating of sets with twelve or fewer objects and record the results with pictures or symbols. b. Model two meanings of subtraction: separating of sets ("take away") and comparison of sets ("how many more/fewer") using objects, pictorial representations, and symbols. c. Use correct vocabulary and symbols to describe addition (i.e., add, "and," plus, +, sum), subtraction (i.e., subtract, minus, -, take away, how many more/fewer), and equals (i.e., =, same as). d. Use zero in addition and subtraction sentences.	**Objective 3:** **Model and illustrate meanings of the operations of addition and subtraction and describe how they relate.** a. Demonstrate the joining and separating of sets with eighteen or fewer objects and record the results with pictures or symbols. b. Model three meanings of subtraction: separating of sets ("take away"), comparison of sets ("how many more/fewer"), and missing addends using objects, pictorial representations, and symbols. c. Separate a given set of objects into two, three, five, or ten groups of equal size. d. Model addition and subtraction of two-digit whole numbers in a variety of ways. e. Select an addition or subtraction sentence to solve a problem involving joining or separating of sets with eighteen or fewer objects. f. Recognize that addition number sentences have related subtraction sentences (e.g., 8-5=3, 3+5=8).	**Objective 3:** **Model and illustrate meanings of the operations of addition, subtraction, multiplication, and division and describe how they relate.** a. Model addition and subtraction of two- and three-digit *whole numbers* in a variety of ways. b. Model multiplication of a one-digit *factor* by a one-digit factor using various methods (e.g., repeated addition, rectangular *arrays*, manipulatives, pictures) and connect the representation to an *algorithm.* c. Model division as sharing equally and as repeated subtraction using various methods (e.g., rectangular arrays, manipulatives, number lines, pictorial representations). d. Demonstrate, using objects, that multiplication and division are inverse operations (e.g., 3x4=12; thus, 12÷4=3 and 12÷3=4). e. Select and write an addition, subtraction, or multiplication sentence to solve a problem related to the students' environment, and write a story problem that relates to a given equation. f. Demonstrate the effects of place value when multiplying whole numbers by 10.	**Objective 3:** **Model and illustrate meanings of the four operations and describe how they relate.** a. Use models to represent multiplication of a one- or two-digit *factor* by a two-digit factor (up to 30) using a variety of methods (e.g., rectangular *arrays*, manipulatives, pictures) and connect the representation to an *algorithm.* b. Recognize that division by zero is not possible (e.g., 6÷0 is undefined). c. Select and write a multiplication or division sentence to solve a problem related to the students' environment and write a story problem that relates to a given equation. d. Represent division of a two-digit *dividend* by a one-digit *divisor*, including whole number remainders, using various methods (e.g., rectangular arrays, manipulatives, pictures) and connect the representation to an algorithm. e. Demonstrate that multiplication and division are inverse operations (e.g., 3x4=12; thus, 12÷4=3 and 12÷3=4). f. Describe the effect of place value when multiplying whole numbers by 10 and 100.	**Objective 3:** **Model and illustrate meanings of operations and describe how they relate.** a. Identify the *dividend*, *divisor*, and *quotient* regardless of the division symbol used. b. Determine whether a whole number is divisible by 2, 3, 5, 9, and/or 10, using the *rules of divisibility.* c. Represent remainders as *whole numbers*, decimals, or fractions and describe the meaning of remainders as they apply to problems from the students' environment (e.g., If there are 53 people, how many vans are needed if each van holds 8 people?). d. Model addition, subtraction, and multiplication of fractions and decimals in a variety of ways (e.g., using objects and a number line). e Select or write the number sentences that can be used to solve a two-step problem. f. Model different strategies for whole number multiplication (e.g., partial product, lattice) and division (e.g., partial quotient). g. Describe the effect on place value when multiplying and dividing whole numbers and decimals by 10, 100, and 1,000.	**Objective 3:** **Model and illustrate meanings of operations and describe how they relate.** a. Represent division of a multi-digit *dividend* by two-digit *divisors*, including decimals, using models, pictures, and symbols. b. Model addition, subtraction, multiplication, and division of fractions and decimals in a variety of ways (e.g., objects, a number line). c. *Apply rules of divisibility.* d. Select or write a number sentence that can be used to solve a multi-step problem and write a word problem when given a two-step expression or equation.

Kindergarten	1st Grade	2nd Grade	3rd Grade	4th Grade	5th Grade	6th Grade
	Objective 4: **Use fractions to identify parts of the whole.** a. Share sets of up to ten objects between two students and identify each part as half. b. Divide geometric shapes into equal parts, identifying halves and fourths.	**Objective 4:** **Use fractions to identify parts of the whole.** a. Separate geometric shapes and sets of objects into halves, thirds, and fourths using a variety of models and illustrations. b. Specify a region of a geometric shape (e.g., as "___ out of ___ equal parts" when given four or fewer equal parts. c. Represent the unit fractions 1/2, 1/3, and 1/4 with objects, pictures, and symbols.	**Objective 4:** **Use fractions to communicate parts of the whole.** a. Identify the denominator of a fraction as the number of equal parts in the whole region or set. b. Identify the numerator of a fraction as the number of equal parts being considered. c. Divide *regions* and sets of objects into equal parts using a variety of models and illustrations. d. Name and write a fraction to represent a portion of a unit whole for halves, thirds, fourths, sixths, and eighths. e. Determine which of two fractions is greater using models or illustrations.	**Objective 4:** **Use fractions to communicate parts of the whole.** a. Divide regions and sets of objects into equal parts using a variety of models and illustrations. b. Name and write a fraction to represent a portion of a unit whole for halves, thirds, fourths, fifths, sixths, eighths, and tenths. c. Relate fractions to decimals that represent tenths. d. Determine which of two fractions is greater using models or illustrations. e. Find equivalent fractions for one-half, one-third, and one-fourth using manipulatives and pictorial representations.	**Objective 4:** **Use fractions to communicate parts of the whole.** a. Divide regions, sets of objects, and line segments into equal parts using a variety of models and illustrations. b. Name and write a fraction to represent a portion of a unit whole for halves, thirds, fourths, fifths, sixths, eighths, tenths, and twelfths. c. Represent the simplest form of a fraction in various ways (e.g., objects, pictorial representations, symbols). d. Represent mixed numbers and improper fractions in various ways (e.g., rulers, objects, number lines, symbols). e. Rename *whole numbers* as fractions with different denominators (e.g., 5=5/1, 3=6/2, 1=7/7). f. Model and calculate equivalent forms of a fraction and describe the process used.	**Objective 4:** **Use fractions and percents to communicate parts of the whole.** a. Divide regions, sets of objects, and *line segments* into equal parts using a variety of models and illustrations. b. Name and write a fraction to represent a portion of a unit whole for halves, thirds, fourths, fifths, sixths, eighths, tenths, twelfths, and sixteenths. c. Write a fraction or ratio in simplest form. d. Name equivalent forms for fractions (halves, thirds, fourths, fifths, tenths), ratios, percents, and decimals, including repeating or terminating decimals. e. Relate percents less than 1% or greater than 100% to equivalent fractions, decimals, *whole numbers*, and mixed numbers.

Kindergarten	1st Grade	2nd Grade	3rd Grade	4th Grade	5th Grade	6th Grade
	Objective 5: Solve whole number problems using addition and subtraction in horizontal and vertical notation. a. Compute addition and subtraction facts to twelve. b. Add three whole numbers with sums to twelve.	**Objective 5: Solve whole number problems using addition and subtraction in vertical and horizontal notation.** a. Use a variety of methods and tools to facilitate computation (e.g., estimation, mental math strategies, paper and pencil, calculator). b. Compute accurately with basic number combinations for addition and subtraction facts to eighteen. c. Add three *whole numbers* with *sums* to eighteen. d. Find the sum of two-digit whole numbers and describe the process used.	**Objective 5: Solve whole number problems using addition, subtraction, multiplication, and division in vertical and horizontal notation.** a. Use a variety of methods and tools to facilitate computation (e.g., estimation, mental math strategies, paper and pencil, calculator). b. Find the sum of any two *addends* with three or fewer digits, including monetary amounts, and describe the process used. c. Find the *difference* of two-digit *whole numbers* and describe the process used. d. Find the *product* for multiplication facts through ten times ten and describe the process used.	**Objective 5: Solve whole number problems using addition, subtraction, multiplication, and division in vertical and horizontal notation.** a. Determine when it is appropriate to use estimation, mental math strategies, paper and pencil, or a calculator. b. Find the sum and difference of four-digit numbers, including monetary amounts, and describe the process used. c. Multiply two- and three-digit *factors* by a one-digit factor and describe the process used. d. Divide a two-digit *whole number dividend* by a one-digit *divisor*, with a *remainder* of zero and describe the process used.	**Objective 5: Solve problems using the four operations with whole numbers, decimals, and fractions.** a. Determine when it is appropriate to use estimation, mental math strategies, paper and pencil, or a calculator. b. Use estimation strategies to determine whether results obtained using a calculator are reasonable. c. Multiply up to a three-digit *whole number* by a one- or two-digit whole number. d. Divide up to a three-digit whole number *dividend* by a one-digit *divisor*. e. Add and subtract decimals with digits to the hundredths place (e.g., 35.42+7.2; 75.2–13.45). f. Add, subtract, and multiply fractions. g. Simplify *expressions*, without *exponents*, using the *order of operations*.	**Objective 5: Solve problems using the four operations with whole numbers, decimals, and fractions.** a. Determine when it is appropriate to use estimation, mental math strategies, paper and pencil, or a calculator. b. Use estimation strategies to determine whether results obtained using a calculator are reasonable. c. Multiply up to a three-digit *factor* by a one- or two-digit factor including decimals. d. Divide up to a three-digit *dividend* by a one- or two-digit *divisor* including decimals. e. Add and subtract decimals to the thousandths place (e.g., 34.567+3.45; 65.3-5.987). f. Add, subtract, multiply, and divide fractions and mixed numbers. g. Solve problems using ratios and proportions. h. Simplify *expressions*, with *exponents*, using the *order of operations*.

Kindergarten	1st Grade	2nd Grade	3rd Grade	4th Grade	5th Grade	6th Grade
					Objective 6: **Model and illustrate integers.** a. Identify, read, and locate *integers* on a number line. b. Describe situations where integers are used in the students' environment.	**Objective 6:** **Model, illustrate, and perform the operations of addition and subtraction of integers.** a. Recognize that the sum of an *integer* and its opposite is zero. b. Model addition and subtraction of integers using manipulatives and a number line. c. Add and subtract integers.
Standard II: **Students will identify and use patterns to represent mathematical situations.**	**Standard II:** **Students will identify and use patterns and relations to represent mathematical situations.**	**Standard II:** **Students will identify and use patterns and relations to represent mathematical situations.**	**Standard II:** **Students will use patterns and relations to represent mathematical situations.**	**Standard II:** **Students will use patterns and relations to represent mathematical situations.**	**Standard II:** **Students will use patterns and relations to represent and analyze mathematical situations using algebraic symbols.**	**Standard II:** **Students will use patterns, relations, and functions to represent and analyze mathematical situations using algebraic symbols.**
Objective 1: **Identify and sort objects according to common attributes.** a. Sort objects into groups by color, shape, size, number, or other *attributes*. b. Identify which attribute was used to sort objects into a group. c. Find multiple ways to sort and classify a group of objects.	**Objective 1:** **Recognize and represent patterns with one or two attributes.** a. Sort and classify objects by one or two *attributes*. b. Identify, create, and label simple patterns using manipulatives, pictures, and symbolic notation (e.g., ABAB. . ., □ ○ △ □ ○ △ . . .). c. Identify patterns in the environment. d. Identify horizontal and vertical patterns on hundreds charts. e. Use patterns to establish skip counting by twos to 20 and by fives and tens to 100. f. Count backward from 10 to 0 and identify the pattern.	**Objective 1:** **Recognize and represent patterns having multiple attributes.** a. Sort, classify, and label objects by three or more *attributes*. b. Identify and label repeating and *growing patterns* using objects, pictures, and symbolic notation (e.g., ABAABBAAABBB...). c. Identify repeating and growing patterns in the environment. d. Construct models and skip count by twos, threes, fives, and tens and relate to repeated addition.	**Objective 1:** **Recognize and create patterns with given attributes.** a. Create and extend *repeating* and *growing* patterns using objects, numbers, and tables. b. Record results of patterns created using manipulatives, pictures, and numeric representations and describe how they are extended.	**Objective 1:** **Recognize, describe, and use patterns and identify the attributes.** a. Represent and analyze repeating and growing patterns using objects, pictures, numbers, and tables. b. Recognize and extend multiples and other number patterns using a variety of methods.	**Objective 1:** **Recognize, analyze, and use patterns and describe their attributes.** a. Analyze and make predictions about patterns involving *whole numbers*, decimals, and fractions using a variety of tools including organized lists, tables, objects, and variables. b. Extend patterns and describe a rule for predicting the next element.	**Objective 1:** **Recognize, analyze, and use multiple representations of patterns and functions and describe their attributes.** a. Analyze patterns on graphs and tables and write a generalization to predict how the patterns will continue. b. Create tables and graphs to represent given patterns and algebraic *expressions*. c. Draw a graph from a table of values or to represent an equation. d. Write an algebraic expression from a graph or a table of values.

Kindergarten	1st Grade	2nd Grade	3rd Grade	4th Grade	5th Grade	6th Grade
Objective 2: **Identify and use patterns to describe numbers or objects.** a. Use patterns to count orally from 1 to 20 and backward from 10 to 0. b. Identify simple patterns in the environment. c. Predict what comes next in an established pattern and justify thinking. d. Duplicate, extend, and create simple patterns using objects and pictorial representations.	**Objective 2:** **Recognize and represent relations using mathematical symbols.** a. Recognize that "=" indicates a relationship in which the quantities on each side of an equation are equal. b. Recognize that symbols such as ☐, △, or ◇ in an addition or subtraction equation represent a missing value that will make the statement true (e.g., ☐ + 3 = 6, 5 +7 = △, 4 = 5 – ◇). c. Demonstrate that changing the order of *addends* does not change the *sum* (e.g., 3+2=5 and 2+3=5).	**Objective 2:** **Recognize and represent relations using mathematical symbols.** a. Recognize that "≠" indicates a relationship in which the quantities on each side are not of equal value. b. Recognize that symbols such as ☐, △, or ◇ in an addition or subtraction equation represent a value that will make the statement true (e.g., ☐ +3=6, 5+7=△, 7=9-◇). c. Demonstrate that changing the order of *addends* does not change the *sum* (e.g., 3+2+7=12, 7+3+2=12) and that changing the grouping of three or more addends does not change the sum (e.g., (2+3)+7=12, 2+(3+7)=12).	**Objective 2:** **Recognize and represent mathematical situations using patterns and symbols.** a. Recognize that symbols such as ☐, △, or ◇ in an addition, subtraction, or multiplication equation, represent a value that will make the statement true (e.g., 5+7=△, ☐-3=6, ◇=2x4). b. Solve equations involving equivalent expressions (e.g., 6+4 = ☐+7). c. Use the >, <, and = symbols to compare two *expressions* involving addition and subtraction (e.g., 4+6 ☐ 3+2; 3+5 ◇ 16-9). d. Demonstrate that grouping three or more *addends* does not change the *sum* (e.g., 3+(2+7)=12, (7+3)+2=12) and changing the order of *factors* does not change the *product* (e.g., 3x7=21, 7x3=21). e. Use a variety of manipulatives to model the *identity property of addition* (e.g., 3+0=3), the *identity property of multiplication* (e.g., 7x1=7), and the *zero property of multiplication* (e.g., 6x0=0).	**Objective 2:** **Recognize, represent, and solve mathematical situations using patterns and symbols.** a. Solve equations involving equivalent expressions (e.g., 6x2= ☐x3 or 6x☐=9+9). b. Use the <, >, = symbols to compare two expressions involving addition, subtraction, multiplication, and division (e.g., 5x4◇9÷3). c. Recognize that a given variable maintains the same value throughout an equation or expression (e.g., ☐+☐=8; ☐=4). d. Demonstrate that changing the order of *factors* does not change the *product* (e.g., 2x3=6, 3x2=6) and that the grouping of three or more factors does not change the product (e.g., (2x3)x1=6; 2x(3x1)=6). e. Demonstrate the distribution of multiplication over addition using a rectangular *array* (e.g., 8x14=8 rows of 10 plus 8 rows of 4).	**Objective 2:** **Represent, solve, and analyze mathematical situations using algebraic symbols.** a. Recognize a variety of symbols for multiplication and division including x, •, and * as symbols for multiplication and ÷, ⌐, and a fraction bar (/ or -) as division symbols. b. Recognize that a variable (◇, n, x) represents an unknown quantity. c. Solve one-step equations involving *whole numbers* and a single variable (e.g., n÷7=3). d. Recognize that the answer to a multiplication problem involving a factor of zero is equal to zero (e.g., 0x45=0). e. Use expressions or one-step equations to represent real-world situations. f. Use the *associative*, *commutative*, and *distributive properties* to compute with whole numbers.	**Objective 2:** **Represent, solve, and analyze mathematical situations using algebraic symbols.** a. Recognize that a number in front of a variable indicates multiplication (e.g., 3y means 3 times the quantity y). b. Solve two-step equations involving *whole numbers* and a single variable (e.g., 3x+4=19). c. Recognize that "≈" indicates a relationship in which the quantities on each side are approximately of equal value (e.g., π ≈3.14). d. Recognize that an *exponent* can be represented in the following ways: 4^3 or 4^3. e. Evaluate *expressions* and formulas, substituting given values for the variables (e.g., 2x+4; x=2; therefore, 2(2)+4=8). f. Recognize that if the *product* is zero, then one or more *factors* equal zero (i.e., if ab=0 then either a=0 or b=0 or a and b=0).

Kindergarten	1st Grade	2nd Grade	3rd Grade	4th Grade	5th Grade	6th Grade
Standard III: **Students will identify and create simple geometric shapes and describe spatial relationships.**	**Standard III:** **Students will describe, identify, and create and simple geometric shapes and describe spatial relationships.**	**Standard III:** **Students will describe, identify, and create geometric shapes and describe spatial relationships.**	**Standard III:** **Students will use spatial reasoning to describe, identify, and create geometric shapes.**	**Standard III:** **Students will use spatial reasoning to recognize, describe, and identify geometric shapes.**	**Standard III:** **Students will use spatial reasoning to recognize, describe, and identify geometric shapes and principles.**	**Standard III:** **Students will use spatial and logical reasoning to recognize, describe, and identify geometric shapes and principles.**
Objective 1: **Identify and create simple geometric shapes.** a. Identify circles, triangles, rectangles, and squares. b. Combine shapes to create *two-dimensional* objects. c. Draw circles, triangles, rectangles, and squares. d. Recognize circles, triangles, rectangles, and squares in the students' environment.	**Objective 1:** **Describe, identify, and create simple geometric shapes.** a. Identify, name, draw, create, and sort circles, triangles, rectangles, and squares. b. Identify circles, triangles, rectangles, and squares in the students' environment. c. Recognize that combining simple geometric shapes can create more complex geometric shapes.	**Objective 1:** **Describe, identify, and create geometric shapes.** a. Identify, name, draw, sort, and compare circles, triangles, and *parallelograms*. b. Identify and name spheres, cones, and cylinders. c. Find and identify familiar geometric shapes in the students' environment. d. Determine whether a circle, triangle, square, or rectangle has a *line of symmetry*.	**Objective 1:** **Describe, identify, and create geometric shapes.** a. Identify and draw *points*, *lines*, *line segments*, and *endpoints*. b. Identify and draw *lines of symmetry* on triangles, squares, circles, and rectangles. c. Determine whether an angle is *right*, *obtuse*, or *acute* by comparing the angle to the corner of a rectangle. d. Classify polygons (e.g., *quadrilaterals*, pentagons, hexagons, octagons) by the number of sides and corners. e. Identify, make, and describe cubes (e.g., a cube has 6 square *faces*, 8 *vertices*, and 12 *edges*).	**Objective 1:** **Describe, identify, and analyze characteristics and properties of geometric shapes.** a. Identify and draw *parallel lines* and *intersecting lines*. b. Identify and draw lines of symmetry on a variety of *polygons*. c. Identify and describe *quadrilaterals* (i.e., rectangles, squares, *rhombuses*, *trapezoids*, kites). d. Identify *right*, *obtuse*, and *acute* angles. e. Compare two polygons to determine whether they are *congruent* or *similar*. f. Identify and describe *cylinders* and *rectangular prisms*.	**Objective 1:** **Describe, identify, and analyze characteristics and properties of geometric shapes.** a. Identify and draw *perpendicular* lines. b. Draw, label, and describe rays and describe an angle as two rays sharing a common endpoint. c. Label an angle as acute, *obtuse*, *right*, or *straight*. d. Identify and describe *equilateral*, *isosceles*, *scalene*, *right*, *acute*, and *obtuse* triangles. e. Identify the *vertex* of an angle or the *vertices* of a polygon. f. Compare *corresponding angles* of two triangles and determine whether the triangles are *similar*. g. Identify and describe *pyramids* and *prisms*.	**Objective 1:** **Identify and analyze characteristics and properties of geometric shapes.** a. Identify the *midpoint* of a *line segment*. b. Identify concave and *convex polygons*. c. Identify the center, *radius*, *diameter*, and *circumference* of a circle. d. Identify the number of *faces*, *edges*, and *vertices* of *pyramids* and *prisms*.

Kindergarten	1st Grade	2nd Grade	3rd Grade	4th Grade	5th Grade	6th Grade
Objective 2: **Describe simple spatial relationships.** a. Visualize how to fit a shape into a design. b. Use and demonstrate words to describe position with objects (i.e., on, over, under, above, below, top, bottom, up, down, in front of, behind, next to, beside). c. Use and demonstrate words to describe distance with objects (i.e., far, near).	**Objective 2:** **Describe simple spatial relationships.** a. Use and demonstrate words to describe position (i.e., between, before, after, middle, left, right). b. Use and demonstrate words to describe distance (i.e., closer, farther).	**Objective 2:** **Describe spatial relationships.** a. Create and use verbal or written instructions to move within the environment. b. Find and name locations using coordinates (A, 1). c. Identify shapes in various orientations (e.g., △ and ▽).	**Objective 2:** **Describe spatial relationships.** a. Give directions to reach a location. b. Use coordinates (A, 1) or regions to locate positions on a map. c. Demonstrate and use horizontal and vertical lines.	**Objective 2:** **Specify locations and describe spatial relationships using grids and maps.** a. Locate positions on a map of Utah using coordinates or regions. b. Give the *coordinates* or *regions* of a position on a map of Utah.	**Objective 2:** **Specify locations and describe spatial relationships using coordinate geometry.** a. Locate points defined by ordered pairs in the first *quadrant*. b. Write an ordered pair for a point in the first quadrant. c. Specify possible paths between locations on a *coordinate grid* and compare distances of the various paths.	**Objective 2:** **Specify locations and describe spatial relationships using coordinate geometry.** a. Graph points defined by ordered pairs in all four quadrants. b. Write the ordered pair for a point in any quadrant.
			Objective 3: **Visualize and identify geometric shapes after applying transformations.** a. Demonstrate the effect of a slide (translation) or flip (reflection) on a figure, using manipulatives. b. Determine whether two polygons are *congruent* by sliding, flipping, or turning to physically fit one object on top of the other. c. Identify *two-dimensional* shapes (*nets*) that will fold to make a cube. d. Create a *polygon* that results from combining other polygons.	**Objective 3:** **Visualize and identify geometric shapes after applying transformations.** a. Identify a *slide* (*translation*) or *flip* (*reflection*) on a figure using manipulatives. b. Relate *cubes*, *cylinders*, *cones*, and *rectangular prisms* to the *two-dimensional* shapes (*nets*) from which they were created.	**Objective 3:** **Visualize and identify geometric shapes after applying transformations.** a. Identify a *slide* (*translation*) or *flip* (*reflection*) on a figure across a line. b. Demonstrate the effect of a *turn* (*rotation*) on a figure using manipulatives. c. Relate *pyramids* and *prisms* to the *two-dimensional* shapes (*nets*) from which they were created.	**Objective 3:** **Visualize and identify geometric shapes after applying transformations.** a. *Turn* (*rotate*) a shape around a point and identify the location of the new vertices. b. *Slide* (*translate*) a polygon either horizontally or vertically on a coordinate grid and identify the location of the new vertices. c. *Flip* (*reflect*) a shape across either the x- or y-axis and identify the location of the new vertices.

Kindergarten	1st Grade	2nd Grade	3rd Grade	4th Grade	5th Grade	6th Grade
Standard IV: **Students will understand and use simple measurement tools and techniques.**	**Standard IV:** **Students will understand and use simple measurement tools and techniques.**	**Standard IV:** **Students will understand and use measurement tools and techniques.**	**Standard IV:** **Students will understand and use measurement tools and techniques.**	**Standard IV:** **Students will understand and use measurement tools and techniques.**	**Standard IV:** **Students will understand and apply measurement tools and techniques.**	**Standard IV:** **Students will understand and apply measurement tools and techniques.**
Objective 1: **Identify measurable attributes of objects and units of measurement.** a. Identify clocks and calendars as tools that measure time. b. Identify a day, week, and month on a calendar. c. Identify pennies, nickels, dimes, and quarters as units of money.	**Objective 1:** **Identify measurable attributes of objects and units of measurement.** a. Identify the appropriate tools for measuring length, weight, capacity, temperature, and time. b. Identify the values of a penny, nickel, dime, and quarter. c. Estimate the length of an object by comparing to a nonstandard unit (e.g., How many new pencils wide is your desk?).	**Objective 1:** **Identify measurable attributes of objects and units of measurement.** a. Sequence a series of events of a day in order by time (e.g., breakfast at 7:00, school begins at 9:00). b. Identify the name and value of a penny, nickel, dime, quarter, and dollar. c. Estimate length, *capacity*, and weight using customary units.	**Objective 1:** **Identify and describe measurable attributes of objects and units of measurement.** a. Recognize the two systems of measurement: *metric* and *customary*. b. Describe the relationship between metric units of length (i.e., centimeter, meter). c. Describe the relationship among customary units of length (i.e., inch, foot, yard) and the relationship between customary units of *capacity* (i.e., cup, quart). d. Estimate length, capacity, and weight using metric and customary units.	**Objective 1:** **Identify and describe measurable attributes of objects and units of measurement.** a. Describe the relationship among *metric* units of length (i.e., millimeter, centimeter, meter), between metric units of capacity (i.e., milliliter, liter), and between metric units of weight (i.e., gram, kilogram). b. Identify a mile as a measure of distance and its relationship to other *customary* units of length. c. Describe the relationship among customary units of *capacity* (i.e., cup, pint, quart, gallon). d. Estimate length, capacity, and weight using metric and customary units.	**Objective 1:** **Identify and describe measurable attributes of objects and units of measurement.** a. Describe the relationship among *metric* units of length (i.e., millimeter, centimeter, meter, kilometer). b. Describe the relationship among *customary* units of weight (i.e., ounce, pound). c. Identify the correct units of measurement for *volume*, *area*, and *perimeter* in both metric and customary systems. d. Estimate length, volume, weight, and area using metric and customary units. e. Convert units of measurement within the metric system and convert units of measurement within the customary system.	**Objective 1:** **Identify and describe measurable attributes of objects and units of measurement.** a. Compare a meter to a yard, a liter to a quart, and a kilometer to a mile. b. Identify *pi* as the ratio of the *circumference* to *diameter* of a circle. c. Explain how the size of the unit used in measuring affects the precision. d. Estimate length, volume, weight, and area using *metric* and customary units.

Kindergarten	1st Grade	2nd Grade	3rd Grade	4th Grade	5th Grade	6th Grade
Objective 2: **Use appropriate techniques and tools to determine measurements.** a. Compare two objects (e.g., shorter/longer, heavier/lighter, larger/smaller, more/less). b. Find the length of an object using nonstandard units (e.g., pencils, paper clips). c. Name the days of the week in order. d. Sort pennies, nickels, dimes, and quarters.	**Objective 2:** **Use appropriate techniques and tools to determine measurements.** a. Compare objects, using nonstandard units, according to their length, weight, or volume (e.g., pencils/length, books/weight, boxes/volume). b. Read and tell time to the nearest hour. c. Name the days of the week, months of the year, and seasons in order. d. Determine the value of a set of the same coins that total 25¢ or less (e.g., a set of 14 pennies equals 14¢, a set of 5 nickels equals 25¢, a set of 2 dimes equals 20¢).	**Objective 2:** **Use appropriate techniques and tools to determine measurements.** a. Compare and order objects, using nonstandard units, according to their length, weight, or capacity. b. Measure length using inches and feet, weight using pounds, and *capacity* using cups. c. Determine the value of a set of up to five coins that total $1.00 or less (e.g., two quarters and one dime equals 60¢; three dimes, one nickel, and one penny equals 36¢). d. Read, tell, and write time to the hour and half-hour. e. Use a calendar to determine the day of the week and date. f. Determine the *perimeter* of a square, triangle, and rectangle by measuring with nonstandard units.	**Objective 2:** **Use appropriate techniques and tools to determine measurements.** a. Measure the length of objects to the nearest centimeter, meter, half-inch, foot, and yard. b. Measure *capacity* using cups and quarts, and measure weight using pounds. c. Determine the value of a combination of coins and bills that total $5.00 or less and write the monetary amounts using the dollar sign and decimal notation. d. Identify the number of hours in a day, the number of days in a year, and the number of weeks in a year. e. Read, tell, and write time to the quarter-hour. f. Identify any given day of the month (e.g., the third Wednesday of the month is the 18th). g. Read and record the temperature to the nearest ten degrees using a Fahrenheit thermometer. h. Estimate and measure the *perimeter* and area of rectangles by measuring with nonstandard units.	**Objective 2:** **Determine measurements using appropriate tools and formulas.** a. Measure the length of objects to the nearest centimeter, meter, quarter-inch, foot, and yard. b. Measure *capacity* using milliliters, liters, cups, pints, quarts, and gallons and measure weight using grams, kilograms, and pounds. c. Read, tell, and write time to the nearest minute, identifying a.m. and p.m. d. Read and record the temperature to the nearest degree, in Fahrenheit, using a thermometer. e. Determine the value of a combination of coins and bills that total $20.00 or less. f. Count back change for a single-item purchase and determine the amount of change to be received from a multiple-item purchase. g. Determine possible *perimeters*, in whole units, for a rectangle with a fixed *area* and determine possible areas when given a rectangle with a fixed perimeter.	**Objective 2:** **Determine measurements using appropriate tools and formulas.** a. Measure length to the nearest 1/8 of an inch and to the nearest centimeter. b. Measure *volume* and weight using *metric* and *customary* units. c. Measure angles using a protractor. d. Calculate *elapsed time* within a.m. or p.m. time periods. e. Read and record the temperature to the nearest degree (above and below zero) when using a thermometer with a Celsius or Fahrenheit scale. f. Calculate the *perimeter* of rectangles and triangles. g. Calculate the *area* of squares and rectangles using a formula.	**Objective 2:** **Determine measurements using appropriate tools and formulas.** a. Measure length to the nearest one-sixteenth of an inch and to the nearest millimeter. b. Estimate and measure an angle to the nearest degree. c. Calculate the *circumference* of a circle using a given formula. d. Calculate *elapsed time* across a.m. and p.m. time periods. e. Calculate the *areas* of triangles, rectangles, and *parallelograms* using given formulas. f. Calculate the *surface area* and *volume* of right, rectangular prisms using given formulas.

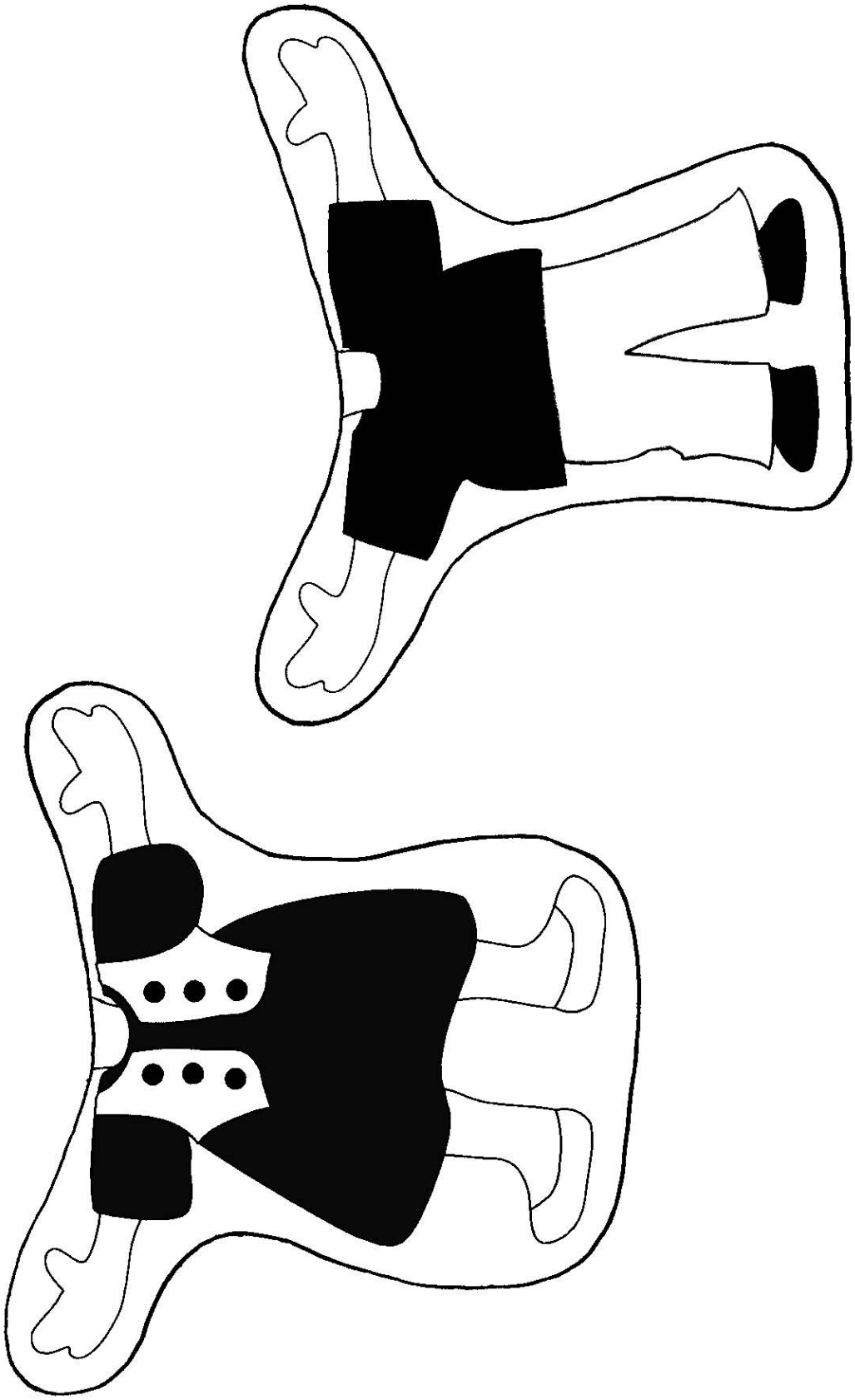
Kindergarten	1st Grade	2nd Grade	3rd Grade	4th Grade	5th Grade	6th Grade
Standard V: **Students will collect and draw conclusions from data and understand basic concepts of probability.**	**Standard V:** **Students will collect and draw conclusions from data and understand basic concepts of probability.**	**Standard V:** **Students will collect and draw conclusions from data and understand basic concepts of probability.**	**Standard V:** **Students will collect and organize data to make predictions and identify basic concepts of probability.**	**Standard V:** **Students will collect and organize data to make predictions and use basic concepts of probability.**	**Standard V:** **Students will collect, analyze, and draw conclusions from data and apply basic concepts of probability.**	**Standard V:** **Students will collect, analyze, and draw conclusions from data and apply basic concepts of probability.**
Objective 1: **Collect, organize, and display simple data.** a. Collect, organize, and record data using objects and pictures. b. Represent data in a variety of ways (e.g., graphs made from people, *pictographs*, bar graphs) and interpret the data (e.g., more people like red than blue).	**Objective 1:** **Collect, organize, and display simple data.** a. Collect physical objects to use as data. b. Collect, represent, and interpret data using tables, tally marks, *pictographs*, and bar graphs.	**Objective 1:** **Collect, organize, and display simple data.** a. Gather data by vote or survey. b. Sort, classify, and organize data in a variety of ways. c. Use a variety of methods to organize, display, and label information, including keys, using *pictographs*, tallies, bar graphs, and organized tables. d. Report information from a data display.	**Objective 1:** **Collect, organize, and display data to make predictions.** a. Collect, read, represent, and interpret data using tables, graphs, and charts, including keys (e.g., pictographs, bar graphs). b. Make predictions based on a data display.	**Objective 1:** **Collect, organize, and display data to make predictions and answer questions.** a. Identify a question that can be answered by collecting data. b. Collect, read, and interpret data from tables, graphs, charts, surveys, and observations. c. Represent data using tables, line plots, line graphs, and bar graphs. d. Identify and distinguish between *clusters* and *outliers* of a data set.	**Objective 1:** **Formulate and answer questions using statistical methods to compare data.** a. Formulate a question that can be answered by collecting data. b. Collect, compare, and display data using an appropriate format (i.e., *line plots*, bar graphs, pictographs, circle graphs, line graphs). c. Identify minimum and *maximum* values for a set of data. d. Identify or calculate the *mean*, *mode*, and *range*. e. Propose and justify inferences based on data.	**Objective 1:** **Design investigations to reach conclusions using statistical methods to make inferences based on data.** a. Design investigations to answer questions by collecting and organizing data in a variety of ways (e.g., bar graphs, line graphs, frequency tables, stem and leaf plots). b. Collect, compare, and display data using an appropriate format (i.e., bar graphs, line graphs, *line plots*, circle graphs, scatter plots). c. Compare two similar sets of data on the same graph and compare two graphs representing the same set of data. d. Recognize that changing the scale influences the appearance of a display of data. e. Develop and evaluate inferences and predictions based on data.

Kindergarten	1st Grade	2nd Grade	3rd Grade	4th Grade	5th Grade	6th Grade
Objective 2: **Determine the likelihood of events.** a. Describe events encountered in books read as possible or not possible. b. Describe events as likely or unlikely (e.g., It is likely to snow today. It is unlikely an elephant will be in school).	**Objective 2:** **Determine the likelihood of an event.** a. Compare events to decide which are more likely, less likely, and equally likely. b. Relate past events to future events (e.g., The sun set about 6:00 last night, so it will set about the same time tonight).	**Objective 2:** **Determine the likelihood of an event.** a. Predict events that will be the same in one day or one week. b. Predict the outcome when there are only two possible outcomes (e.g., tossing a coin).	**Objective 2:** **Identify basic concepts of probability.** a. Describe the results of events using the terms "certain," "equally likely," and "impossible." b. Predict outcomes of simple activities (e.g., a bag contains three red marbles and five blue marbles. If one marble is selected, is it more likely to be red or blue?).	**Objective 2:** **Use basic concepts of probability.** a. Describe the results of investigations involving random outcomes as simple ratios (e.g., 4 out of 9, 4/9). b. Predict outcomes of simple experiments, including with and without replacement, and test the predictions.	**Objective 2:** **Apply basic concepts of probability.** a. Describe the results of investigations involving random outcomes using a variety of notations (e.g., 4 out of 9, 4/9, 4:9). b. Recognize that outcomes of experiments and samples are fractions between 0 and 1. c. Predict the probability of an outcome in a simple experiment.	**Objective 2:** **Apply basic concepts of probability.** a. Write the results of a probability experiment as a fraction, ratio, or percent between zero and one. b. Compare experimental results with anticipated results (e.g., experimental: 7 out of 10 tails; whereas, anticipated 5 out of 10 tails). c. Compare individual, small group, and large group results for a probability experiment.

Facilitated Activities

Flag Page

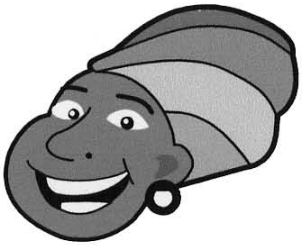
Boy and Girl



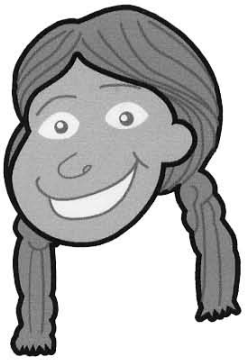
Students in Our Country









The Integrated Curriculum in Elementary Classrooms: A Research Base

Curriculum developed through the integrated approach reflects the real world and engages the learner's body, mind, feelings, senses, and intuition in learning experiences. Grounded in developmental brain research and information processing theories, the integrated approach develops skills needed to function in an information-rich world (Shoemaker, 1989).

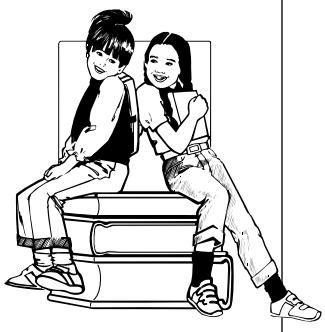
In sum, research on the integrated approach to curriculum development suggests positive effects on student achievement, ability to make connections across disciplines, and attitudes toward learning. Following is an overview of some research findings.

Achievement Gains

- Students demonstrated increased understanding of science concepts (Romance & Vitale, 2001).
- Achievement gains were observed in the areas of conceptual learning and text comprehension (Guthrie et al., 1999).
- Students showed gains in their ability to use higher-order thinking strategies including: comprehending informational texts, searching multiple texts, representing knowledge, transferring concepts, and interpreting narrative (Guthrie et al., 1996).
- Students showed gains in ability to write about realistic situations embedded in the integrated approach to curriculum development (Hillary, 1996).

Connections

- Students made increased connections across disciplines (Boidy & Moran, 1994; Roth et al., 1992).
- Students demonstrated the ability to transfer learning across subjects and to apply learning to real life (Boidy & Moran, 1994).



Attitudes

- The classroom climate was more positive and students and teachers demonstrated increased enjoyment of learning (Fuller, 2001).
- Students demonstrated more positive attitudes and self-confidence toward both science and reading (Romance & Vitale, 2001).
- Increase in higher-order thinking strategies correlated with increase in intrinsic motivation for literacy experiences (Guthrie et al., 1996).

Several articles describe integrated curriculum projects and some references (research and non-research) are listed below. The last two articles listed describe school-wide or district-wide reform projects where the integrated curriculum was implemented.

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Resources for Mini-Grants for Teachers

1. Contact your local education foundation.
2. NEA Foundation for Improvement of Education
   http://www.nfie.org/grants.htm
3. Teaching Tolerance
   Supports materials and activities aimed at anti-bias teaching
   http://www.tolerance.org/teach/expand/gra/index.jsp
4. Utah Credit Union
   http://www.100percentforkids.com/

Helpful Hints for Supporting All Learners

The following information is provided as a resource for teachers as they work with the diverse learners they encounter in their classrooms. Most ideas presented are for use in any content area and at any grade level, including the K-2 Content, Math, and Science Core curricula that are the focus of the 2004 Elementary CORE Academy.

Common barriers to learning and ways to overcome those barriers are presented, as well as the basic fundamentals of differentiating instruction. Also included is a checklist for highlighting appropriate student-specific adaptations and modifications designed to help struggling students, including the gifted.

There is also a chart that describes weaknesses in cognitive processes that could explain why a student struggles with particular reading or other academic skills. This information should be provided through formalized assessment.

For more information, please contact curriculum or special education specialists at the Utah State Office of Education or the specialists at the Utah Personnel Development Center.

- **Barriers Students Face**
- **Engaging All Learners**
- **Adaptation/ Modification Checklist**
- **Why Students Struggle in the Classroom**

Barriers Students Face

1. Barriers exist that encumber the path to academic achievement for students.
2. The way to get around the barriers is by employing effective instructional practices that utilize differentiation strategies.
3. Two elements of a learning setting can be points of differentiation.
   a. Person—learner
      These characteristics are out of the control of the teacher, but can be positively influenced by differentiation.
      - *Learning Preference* (style or strength)
      - *Learning Ability* (enhanced or impaired)

   b. Process—instruction
      These practices during the instructional cycle are within the control of the teacher and can positively influence student achievement.
      - *Input* (instructional delivery)
      - *Output* (demonstration of learning)

Common Barriers

PERSON—Student	What to do about it	PROCESS—Instruction	What to do about it
Limited language skills	Pre-teach critical or potentially troublesome vocabulary. Provide visual or kinesthetic cues.	**Unclear directions and expectations**	Reduce instructional clutter. Provide simple clear directions. Teach and maintain consistent routines.
Trouble maintaining attention	Provide short, intense learning sessions, vary tasks, break down complex tasks.	**Over-reliance on worksheets/bookwork**	Provide explicit instruction, examples, and relevant practice. Provide adequate guided practice.
Inadequate mastery of prerequisite skills	Provide experience or background knowledge Do not assume anything.	**Inadequate Guided Practice during lesson sequence**	Continue with guided practice until 90% of your students are performing skill at 80%-90% or better.
Inefficient processing skills	Allow think time, provide physical cue to respond, rehearse responses, use simple vocabulary, check for understanding, give one direction at a time, wait time.	**Use of abstract examples**	Use clear, easily recognizable examples during initial phases of instruction. Use visual, auditory, and kinesthetic representations. Relate to real-life.
Impaired academic learning ability	Make tasks less complex, reduce amount of content to be leaned, relate to real-life experience of student.	**Only one option for students to demonstrate learning**	Provide more than one way for students to show what they know. Same criteria, demonstration is different.
Advanced academic learning ability	Make tasks more complex. Increase amount of content to be learned.	**Inappropriate use of homework**	Homework is review, not new learning. Do not use as busy work. Provide feedback.

Engaging All Learners

Hints for Differentiating Instruction

1. **INPUT—instruction**

   Visual Learners—use pictures, videos, diagrams, maps, guided notes, flow charts, demonstration, flash cards, study cards

   Auditory Learners—use lecture, telling, discussion, audio tracks, read aloud, debate, listen to news reports

   Kinesthetic Learners—use underlining, manipulatives, tracing, highlighting, dramatize, pantomime, mimic actions, field trips, information walks, actions, sign language.

2. **OUTPUT—demonstration of learning**

   Visual Learners—allow collages, drawings, diagrams, symbols, posters, cartoons, photos, maps, flow-charts, video

   Auditory Learners—allow storytelling, debates, speech, song/rap, interview, newspaper article, discussion, essays, journaling

   Kinesthetic Learners—allow painting, dancing, molding, model building, role play, pantomimes, games, creations, raps

Hints for Extending Instruction: for Academically Advanced Students

1. **INPUT—instruction**

   More Content—more elements to master, more independent study, supplementary materials, use less obvious examples, give more abstract examples and ideas, less practice on material given

   More Complex Task—more responses, more complex directions, more examples, more opportunities to generalize, less teacher direction

2. **OUTPUT—demonstration of learning**

   More Content—more concepts to demonstrate, require broad generalization, group work, complex assignments, generation instead of recognition, proficiency on more skills

   More Complex Task—require more responses, increase number of examples demonstrated, student must reorganize information, student develops more strategies for remembering—shares with others, teaches others

Hints for Accommodating Instruction: for Academically Struggling Students (Spec. Ed, 504, ELL, other)

Changes HOW student accesses or demonstrates learning.

NO change in HOW MUCH learning is expected.

1. **INPUT—instruction**

   Math—provide photocopy of assignment to write on, break down complex tasks, allow calculator use, use fact charts, give prompts for remembering steps, "think" out loud when instructing, increase amount of guided practice, teach strategies, identify & teach critical elements, peer partners, relate to real-life, guided notes

   Science—provide text reader, graphic organizers, teach prerequisite vocabulary, read written directions aloud, provide guided notes, explanations, clear examples and non examples, identify and teach critical elements, cloze procedure note taking, experiential activities, chunk instructional periods, multi-sensory approach, break-down complex tasks, relate to real-life, teach memory strategies

2. **OUTPUT—demonstration of learning**

   Math—allow extra time, partial assignments, use calculator, give prompts for formula steps, use a "do/redo/turn-in" option, do not mix examples and non-examples without clear warning, photocopy of assignment to write answers on, a copy of book for home, mix current lesson with basic skill review problems, check for understanding, homework partner, accept work done in class

   Science—allow verbal responses, posters, models, reduce choices on matching, give more time, short answer instead of essay, type instead of write, proofreader, do not penalize for spelling errors, demonstrations, provide a task analysis or completion checklist, review needed materials or steps, reduce writing load on assignments, allow a "do/re-do" option

Hints for Modifying Instruction for students with disabilities (Spec. Ed-must have an IEP)

Changes in WHAT/HOW MUCH a student is expected to learn.

1. **INPUT—instruction**

   Less Content—instruct on one or two basic skills/ideas, parallel curriculum on same topic, use simple real-life examples, simplify guided notes, provide concept summaries with easy to understand words, provide more practice with less material, use more examples with less material, reduce content clutter in lessons

   Less Complex Task—use words with literal meanings, break tasks down then teach each part to mastery, provide more prompts during guided practice, highlight basic information, keep tasks to one to three steps, provide guidance for remembering/associating information, provide easy diagrams or templates

2. OUTPUT—demonstration of learning

Less Content—fewer elements to master, one or two concepts to demonstrate, reduce assignment length, relate assignment to functional/real-life skills, assign easiest job during group work, have students recognize instead of generate information, require proficiency on only one or two skills

Less Complex Task—break down task, require only one or two responses, limit choices on matching, provide high level of prompting, outline necessary steps, allow strategies for remembering, give fewer practice exercises, reduce number of test items, give a modified test, highlight basic information, allow student to point to or say instead of write out, give extra time

Adaptation/Modification Checklist

Student: _____ Teacher: _____

Testing Adaptations:	**Presentation of Subject Matter:**	**Assignment Accommodations:**
❑ Change essay questions to multiple choice. ❑ Reduce multiple choice to _____ choices. ❑ Avoid True or False questions. ❑ Avoid essay questions. ❑ Provide a word bank. ❑ Accept short answers. ❑ Give open book/notes tests. ❑ Allow student to record or dictate answers. ❑ Reduce spelling list for spelling tests. ❑ Extend time frame or shorten length of test. ❑ Avoid Scantron answer sheets. ❑ Read test to student. ❑ Provide study guide prior to test. ❑ Type tests and/or use large print. ❑ Test smaller units of material. ❑ Highlight key directions. ❑ Give test in an alternate site. ❑ Allow student to use calculator. ❑ Allow a test retake. ❑ Other: _____.	❑ Teach to the student's learning style: _____ ❑ Read text aloud. ❑ Provide small group instruction. ❑ Provide an accurate copy of notes or key points written on the board or overhead. ❑ Model lesson being taught. ❑ Utilize manipulatives. ❑ Highlight critical information. ❑ Pre-teach the vocabulary. ❑ Do not call on the student to read aloud in class. ❑ Check student's understanding during the lesson. ❑ Provide study guides. ❑ Assign a study buddy. ❑ Allow time for student to process directions/information. ❑ Other: _____.	❑ Give directions in writing and verbally. ❑ Avoid penalizing for spelling errors, except on spelling tests/assignments. ❑ Show an example of what the completed assignment should look like. ❑ Reduce assignment. ❑ Read written work to student. ❑ Provide alternate assignment/strategy when demands of assignment conflict with student capabilities. ❑ Allow student to word process assignment. ❑ Avoid penalizing for poor penmanship. ❑ Allow student to use manuscript. ❑ Communicate homework expectations with parents. ❑ Check for student's understanding of the task. ❑ Chunk tasks. ❑ Allow a scribe or note taker. ❑ Other: _____.
Materials:	**Grading:**	**Miscellaneous:**
❑ Taped textbooks or other class material. ❑ Highlighted textbooks. ❑ Special equipment: calculator, computer, word processor/spell checker, other _____ ❑ Large print books. ❑ Special paper (wide-lined, graph, etc.) ❑ Two sets of books; second one for home. ❑ Assignment sheet or planner. ❑ Behavior monitoring sheet. ❑ Other: _____	❑ Use pass/fail grading system. ❑ Use a modified scale. ❑ Give credit for partial completion. ❑ Consider effort in assigning grade. ❑ Give credit for participation. ❑ Give copies of midterms to parents. ❑ Notify special education teacher when grades drop below a C-. ❑ Other: _____	❑ Avoid timed activities. ❑ Implement preferential seating. ❑ Provide cues for staying on task. ❑ Provide a quiet place to work. ❑ Allow short breaks during assignments. ❑ Seat student next to a good role model. ❑ Provide daily check-in time with teacher. ❑ Consider Assistive Technology and Services. ❑ Other: _____.

Why Do Some Students Struggle in Your Classroom?

In explaining deficits in learning, there are weaknesses in cognitive processes that should be ruled in or ruled out through formalized assessment.

Cognitive Processes:	What it looks like in the classroom:
Auditory Processing—Perception, analysis, and synthesis of auditory stimuli.	❑ Confuses words and phrases that sound alike (e.g., "blue" with "blow" or "ball" with "bell"). ❑ Finds it hard to pick out an auditory figure from its background and it may seem that they are not listening or paying attention. ❑ Processes sound slowly and cannot keep up with the flow of conversation, inside or outside the classroom. ❑ Difficulty with phonics (decoding), spelling, and reading fluency.
Visual Perception—Recognizing the position and shape of what is seen (The "Mind's Eye").	❑ Reverses/rotates letters, jumps over words, reads the same line twice, or skip lines. ❑ Difficulty distinguishing a significant form from its background.
Short-Term Memory—Ability to hold information in immediate awareness and use it within a few seconds.	❑ Difficulty learning from lecture, listening and following directions. ❑ Cannot remember information long enough to process for comprehension and retrieval.
Long-Term Retrieval—Ability to store information and retrieve it later over extended time periods.	❑ "I know it but I can't think of it" phenomena. ❑ Demonstrate mastery of information one day and unable to recall it on test day (poor test performance/inconsistent grades).
Comprehension-Knowledge—Breadth and depth of acquired cultural knowledge and experience.	❑ Low vocabulary and reading comprehension. ❑ Difficulty in listening comprehension and in answering factual questions.
Processing Speed—Fluent performance of cognitive tasks automatically when under pressure to maintain attention.	❑ Can't process symbols fast enough to enhance decoding or comprehension. ❑ Does poorly on timed tasks.
Visual-Spatial Thinking—Perception, analysis, synthesis, and manipulation of visual stimuli.	❑ Weakness: rapid sound/symbol associations, copying tasks, and recognizing whole words.
Fluid Reasoning—Involves inductive and deductive reasoning, identifying relations, and drawing inferences.	❑ Difficulty in transfer and generalization. ❑ Poor flexibility in thinking. ❑ Low abstract problem solving.
Attention/Concentration—Ability to filter and prioritize external/internal stimuli to attend.	❑ Poor task/work completion. ❑ Assignments are partially completed, often items are skipped. ❑ Seems disorganized during instruction and practice.
Working Memory—Ability to temporarily store and perform a cognitive operation on a set of information.	❑ Problems with sequencing. ❑ Not flexible in use of strategies to solve problem/task. ❑ Attempts task but only understands a part of it. ❑ Seems unmotivated.
Cognitive Academic Language Proficiency—Proficiency in academic situations and those aspects of language that emerge from formal schooling.	❑ Understands more than can express. ❑ Difficulty in receptive and expressive language. ❑ Language "different" rather than language "disability". ❑ Poor vocabulary knowledge.

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Content Standard I and Math Standard V Activities

Daily Graph

Math Standard V:
Students will collect and draw conclusions from data and understand basic concepts of probability.

Objective 1:
Collect, organize, and display simple data.

Intended Learning Outcomes:
5. Understand and use basic concepts and skills.
6. Communicate clearly in oral, artistic, written, and nonverbal form.

Content Connections:
Math I-1, 2, IV-1

Math Standard V

Objective 1

Connections

Background Information

Daily Graph is designed to be a math extension of any and all topics that are being discussed in the classroom. This lesson includes several ideas to create graphs, but the most meaningful experience will happen when the graphs are tied into the Core Curriculum being discussed in class at that specific time. For example, if you have been studying seeds as part of a plant unit, students should graph their favorite seeds.

Invitation to Learn

Collect data as students arrive in the morning or as they return to the classroom following lunch or after recess. Collecting data can be done in a variety of ways. Be creative and use as many different methods and materials as possible.

Instructional Procedures

1. Each day each student should participate in the daily data collection and graphing experience by adding to the class data.
2. After each student has participated, the teacher facilitates a discussion about the data collected. Below is a list of ideas for the daily graph exercise.
   - Are you a boy or a girl?
   - Are you shorter or taller than the line on the wall?
   - How do you fasten your shoes?
   - Which do you like better? (e.g., sun or snow, hamburger or pizza, etc.)
   - How old are you?

Materials
- ❑ Chart paper
- ❑ Unifix cubes
- ❑ Balance scales
- ❑ Clocks
- ❑ Popsicle sticks

- Which color do you like best?
- How many pets do you have?
- How many people live in your house?
- How many pockets do you have?
- What color are your shoes?
- What color is your hair?
- What color are your eyes?
- What flavor of ice cream do you like?
- What do you think the weather will be like tomorrow? (Today, at lunch, after school, etc.)
- How do you feel today?
- Which color is most of your outfit?
- What do you enjoy doing? (e.g., biking, running, swimming, etc.)
- Do you have glasses?
- Do you like to draw, paint, or color?
- What did you do first when you got up this morning? (e.g., brush teeth, eat breakfast, get dressed, etc.)
- How many brothers/sisters do you have?
- How many times can you hop on one foot?
- How many vowels are in your name?
- How many consonants are in your name?
- How many letters are in your name?
- How many syllables are in your name?
- What is your favorite holiday?
- What is your favorite season?
- How did you get to school today? (e.g., walk, bike, car, bus, etc.)
- How many teeth have you lost?
- What is your favorite subject at school?
- How many children sit at your table?
- How many buttons do you have today?
- What is your favorite day of the week?
- What month is your birthday?
- What is your favorite coin?
- What is your favorite time of the day?
- What is your favorite weather?

Possible Extensions/Adaptations/Integration

The possibilities for extensions and integration with this activity are endless. Students could record thoughts and data in journals. They could write numerical math problems and story problems about information. They could write predictions based on information. Groups of children could be in charge of presenting the information to the class. The daily graph can be applied to any subject so integration is simple. For example, if you are learning about syllables, have students graph the number of syllables in their name.

Assessment Suggestions

Most of the assessments for this activity would have to come from the various extensions done in class. Assessing student journal writing on the daily graph is easier to track and record than just observing their participation in the discussion.

Family Connections

A great family connection is to send home the same graph topic done in class that day to do at home with family. Have students record their thoughts and findings in writing. This also serves as a wonderful assessment of student understanding.

Listen, Learn, and Love Music

Content Standard I

Objective 3

Connections

Content Standard I:
Students will develop a sense of self.

Objective 3:
Develop and use skills to communicate ideas, information, and feelings.

Intended Learning Outcomes:
2. Develop social skills and ethical responsibility.
3. Demonstrate responsible emotional and cognitive behaviors.
5. Understand and use basic concepts and skills.
6. Communicate clearly in oral, artistic, written and nonverbal form.

Content Connections:
Language Arts I-2, II-1, 2, VII-1, 2, 3

Invitation to Learn

Many times the actual song that you are singing would be considered an invitation to learn for the concept you are teaching. If you are using the song as a transitional tool, an invitation to learn may simply be recalling their attention to the song that you are about to sing.

Instructional Procedures

Materials
- ❑ *Listen* CD
- ❑ *Listen* song cards

Because each song on the CD is so different and can have so many possible extensions, instructional procedures are written for each song.

Green Grass Grew All Around

Use this song when you are studying plants. It also is great for teaching the concept of sequencing. It is fun to make picture cards of the different items in the song and then have the students place the cards in the correct order according to the sequence of the song.

Dino Round

This song is a fun way to introduce the concept of rounds to first graders. The text is fun and easy so it works well to sing as a round. Rounds are difficult for first graders but they can do it with a little practice.

There Was an Old Lady

This song is a favorite for all children. This is another great song to use when studying sequencing. Picture cards of the different animals can be created and students can place the cards in the correct order according to the sequence of the song. Because the animals grow in size each time the lady eats one, this song is also great for talking about measurement

words. For example, the fly is the smallest, the horse is the largest. The spider is larger than the fly but smaller than the dog, etc. This song also has some great probability lessons. See *The Old Lady and Probability* (p. 3-17) for more details.

One Bottle O' Pop

This song is another round. This is a little more difficult than the Dino Round so it is better to introduce it later in the year after the concept of rounds has been introduced.

Al and Etta

Incorporate interactive writing with *Al and Etta*. Parts of the song are left off for you to finish. Brainstorm ideas with your class and come up with some fun new words. It is also fun to rewrite the words each time you sing the song so that all students feel like they are composers. Here are some ideas…

Jolly Jelly beans of green, now you know just what I mean…

Jolly Jelly beans of red, I don't want to go to bed…

Jolly Jelly beans of blue, one for me and one for you…

Jolly Jelly beans of black, I keep them in a great big sack…

Jolly Jelly beans of white, I like to eat my beans at night…

Rattlin' Bog

Use *Rattlin' Bog* to teach sequencing. The rhythm is catchy and fun. Students could be given word or picture cards to put in the correct order of the sequence of the song.

Pizza Hut

This song is instrumental. This is a great song to use with students when they have their own instruments and can play along. Instruments can be anything from bells and chimes to homemade drums or even snapping fingers.

Comin' Round the Mountain

Another children's favorite that is great for practice with melody. Because of the actions that can be done while singing, this song is also great for coordination development. It can also be used to review sequencing.

Hole in the Bottom of the Sea

This song adds a new part each verse so it works well when studying sequencing. Picture cards or word cards can be made for students to place in order as the song is sung.

BLT

BLT will quickly become a classroom favorite. It is a three-part round. The melody and the words are very simple so it is not too difficult for first graders.

Additional Resources

For more song kits and information visit the National Education Network Web site http://www.n-e-n.com

Shape Stretch

Content Standard I:
Students will develop a sense of self.

Objective 2:
Develop and demonstrate skills in gross and fine motor movement.

Intended Learning Outcomes:
4. Develop physical skills and personal hygiene.
5. Understand and use basic concepts and skills.

Content Connections:
Math I-3, 5, III-1, V-2

Content Standard I

Objective 2

Connections

Background Information

Incorporate balance and movement along with many different mathematical concepts with *Shape Stretch*. As it is written in this lesson, this activity is only used for addition and subtraction. Shape Stretch should be used in small groups (five to six) so all children can have an adequate number of turns.

Note: Felt fabric works best to create *Shape Stretch* shapes. Attach Velcro to the back. Construction paper works also. Do not laminate as pieces will become too slippery and Velcro will not attach to lamination.

Invitation to Learn

Ask students if they have played *Twister*. Ask students to tell you about the game and how you win or loose. Explain that *Shape Stretch* is much the same as *Twister,* but the rules are a little different.

Instructional Procedures

1. Explain the rules to the class. With five players, three will be on the *Shape Stretch* board actually playing and one will be the dice roller and the other will be the spinner.
2. As one of the players on the board falls or has an incorrect response, s/he will take the place of the dice roller or the spinner and that child will then enter the activity on the board.
3. Before placing his/her hand or foot on the shape, the child playing on the board needs to find the sum or difference of the numbers and locate the correct answer using the key.

Materials

One of each color (red, green, blue, yellow):

- ❑ Four circles
- ❑ Four squares
- ❑ Four triangles
- ❑ Four rectangles
- ❑ Dice—two per game
- ❑ *Shape Stretch Spinner*
- ❑ *Shape Stretch Key*

4. The child then needs to hold that position until his/her next turn. If the child falls or places his/her hand or foot on the incorrect shape, s/he is out and a new player comes in to take his/her place.

Possible Extensions/Adaptations/Integration

Modifications may be necessary for students with disabilities. For example, they may not be able to use their feet, but they can use their hands, or vise versa. Also because of physical limitations students may only be able to be spinners or dice rollers. A fun way for these students to play is to have them roll the dice or spin the spinner, but then they get to choose a player of their choice to put their hand or foot on the correct shape.

Extensions for this activity could be designed in the way that it is played. For example, the rules can be modified for higher-level learners because they write and/or solve story problems instead of rolling dice. They may also graph the results of the spinner to help predict probability.

Extensions for this activity for lower level learners may be done by using one die so students are working on number recognition and one to one correspondence. It may also be played with no dice and students work on shape or color recognition.

Integration into language arts can occur by having students write story problems to be used instead of dice, or use number word cards, color word cards, or shape word cards to help with sight word recognition.

Assessment Suggestions

Observation of how students interact during this activity serves as a great assessment.

Family Connections

This is a great activity for students to make in class and then take home to share with their families. Use this activity throughout the year with families to reinforce different math concepts students are learning in school.

Shape Stretch Spinner

Shape Stretch Key

0, 1, 2, 3 — Circle ○

4, 5, 6 — Square □

7, 8, 9 — Triangle △

10, 11, 12 — Rectangle ▭

Shape Stretch Key

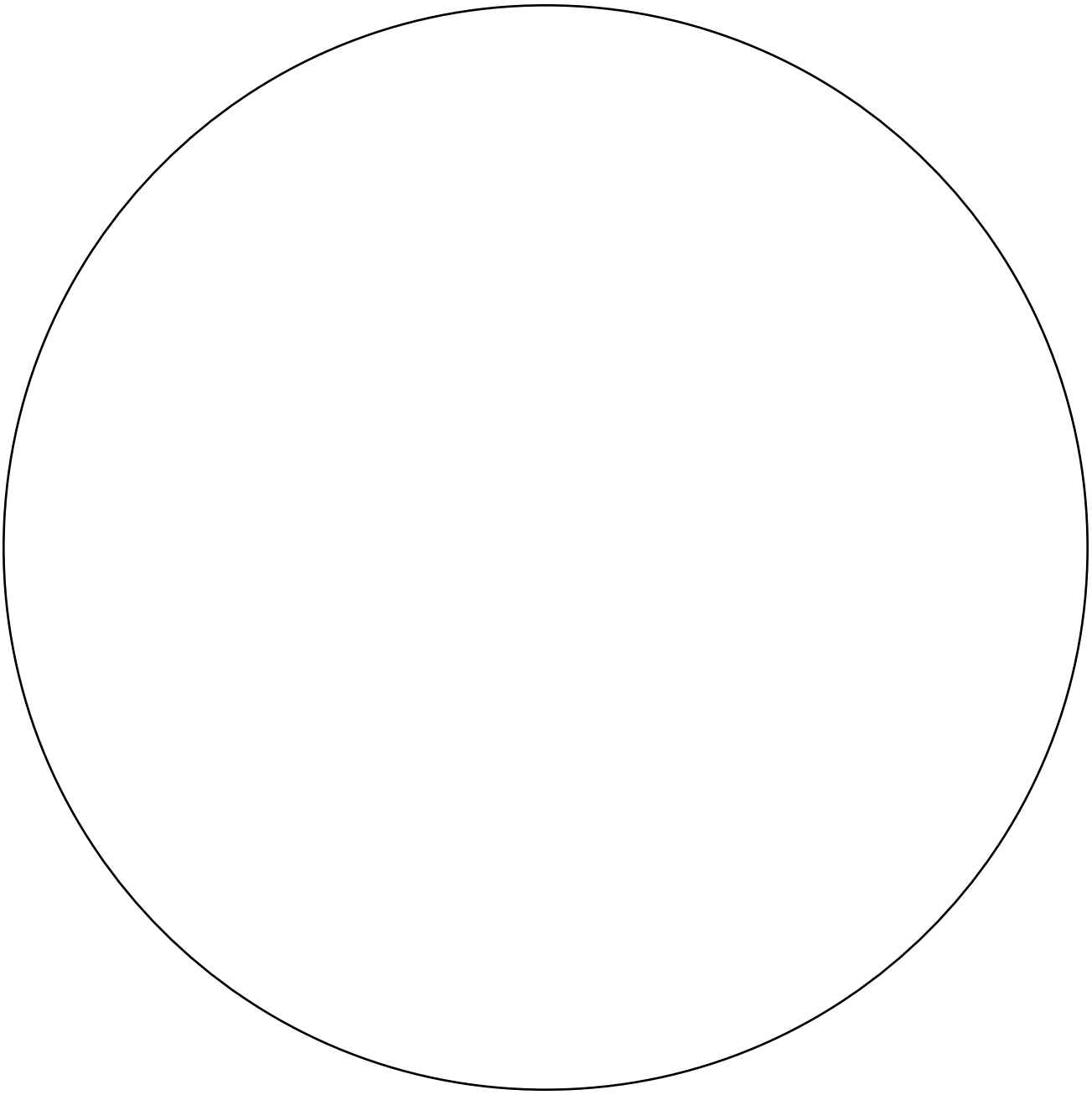
0, 1, 2, 3 — red

4, 5, 6 — green

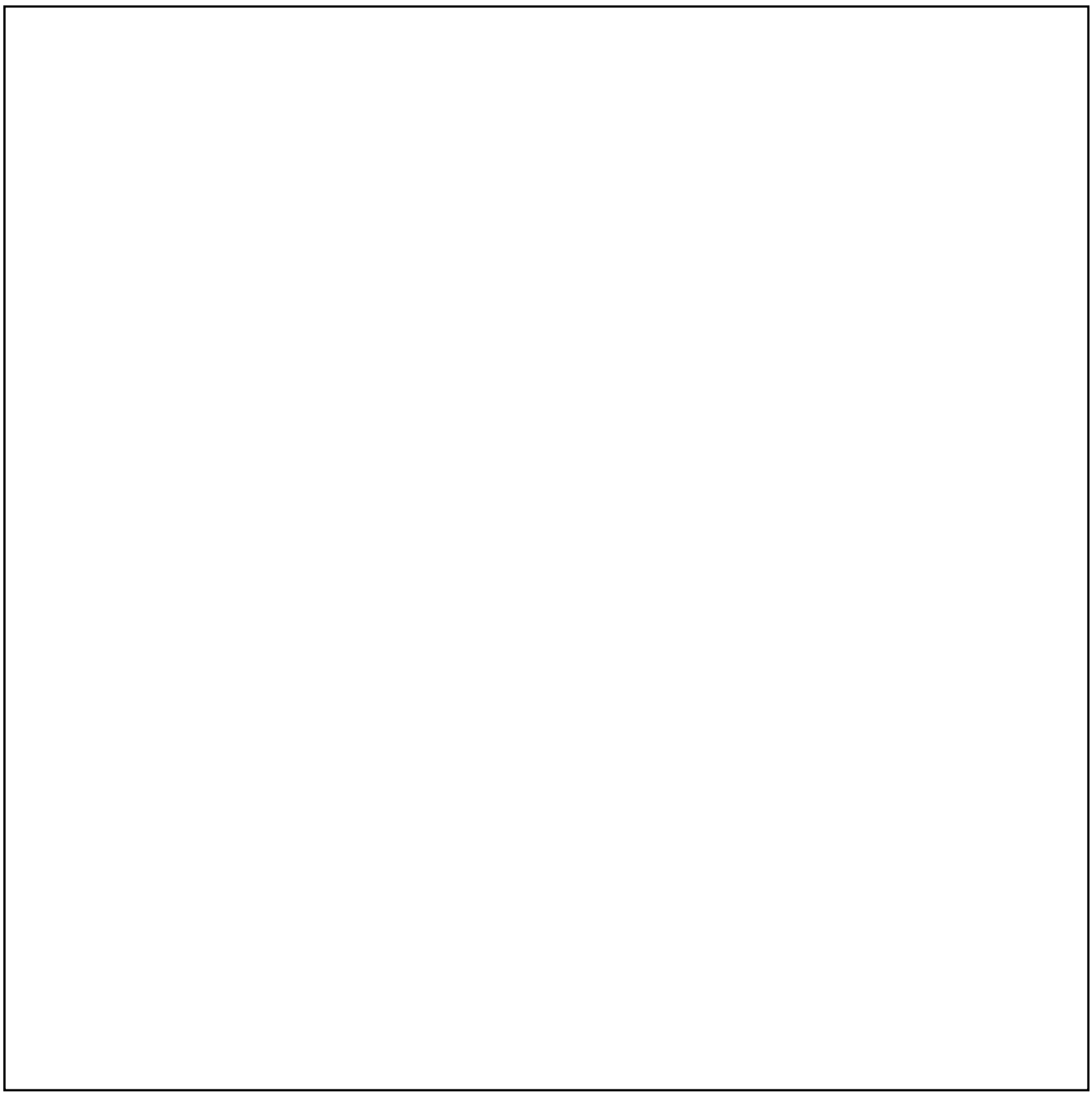
7, 8, 9 — yellow

10, 11, 12 — blue

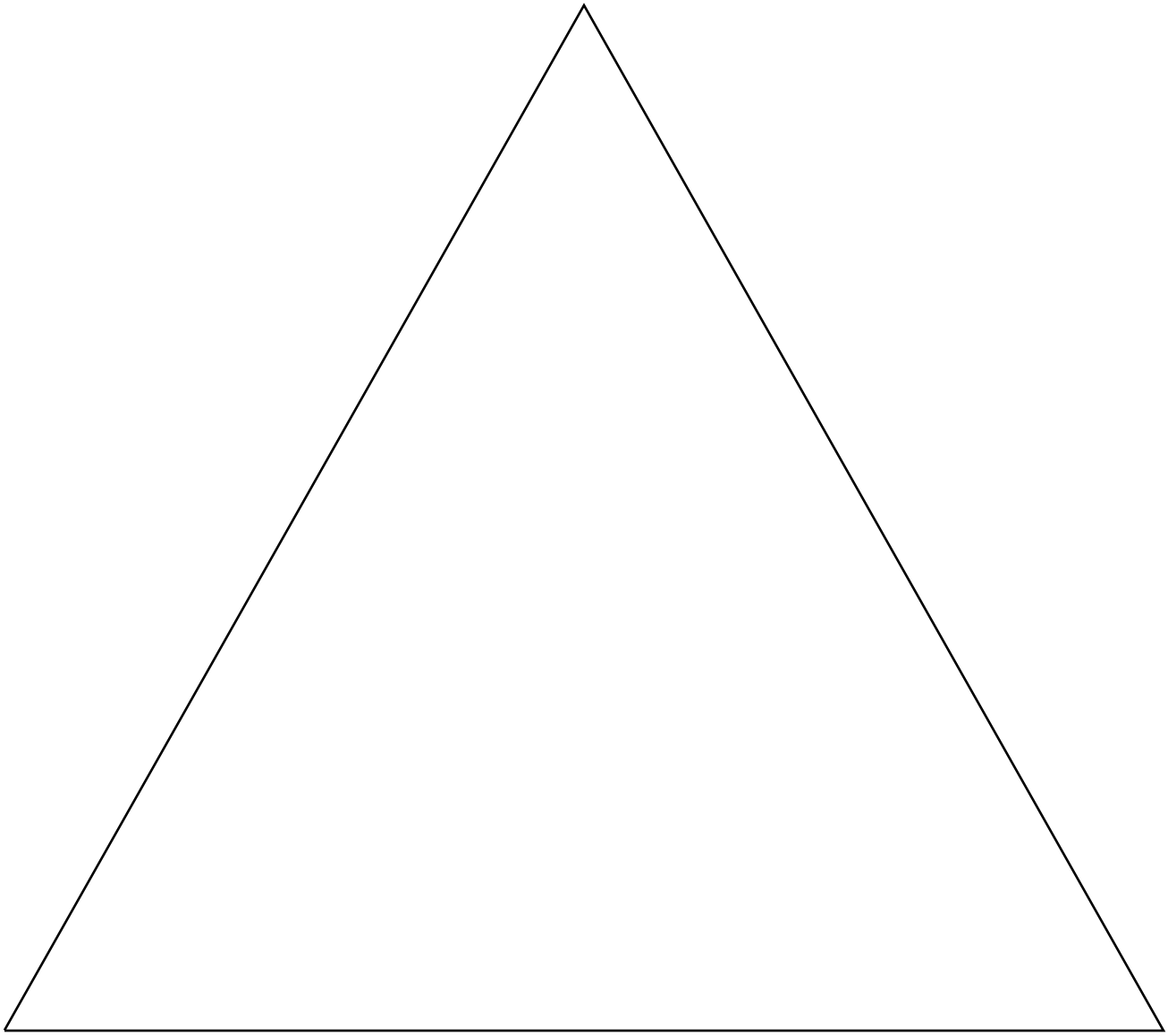
Shape Stretch Circle



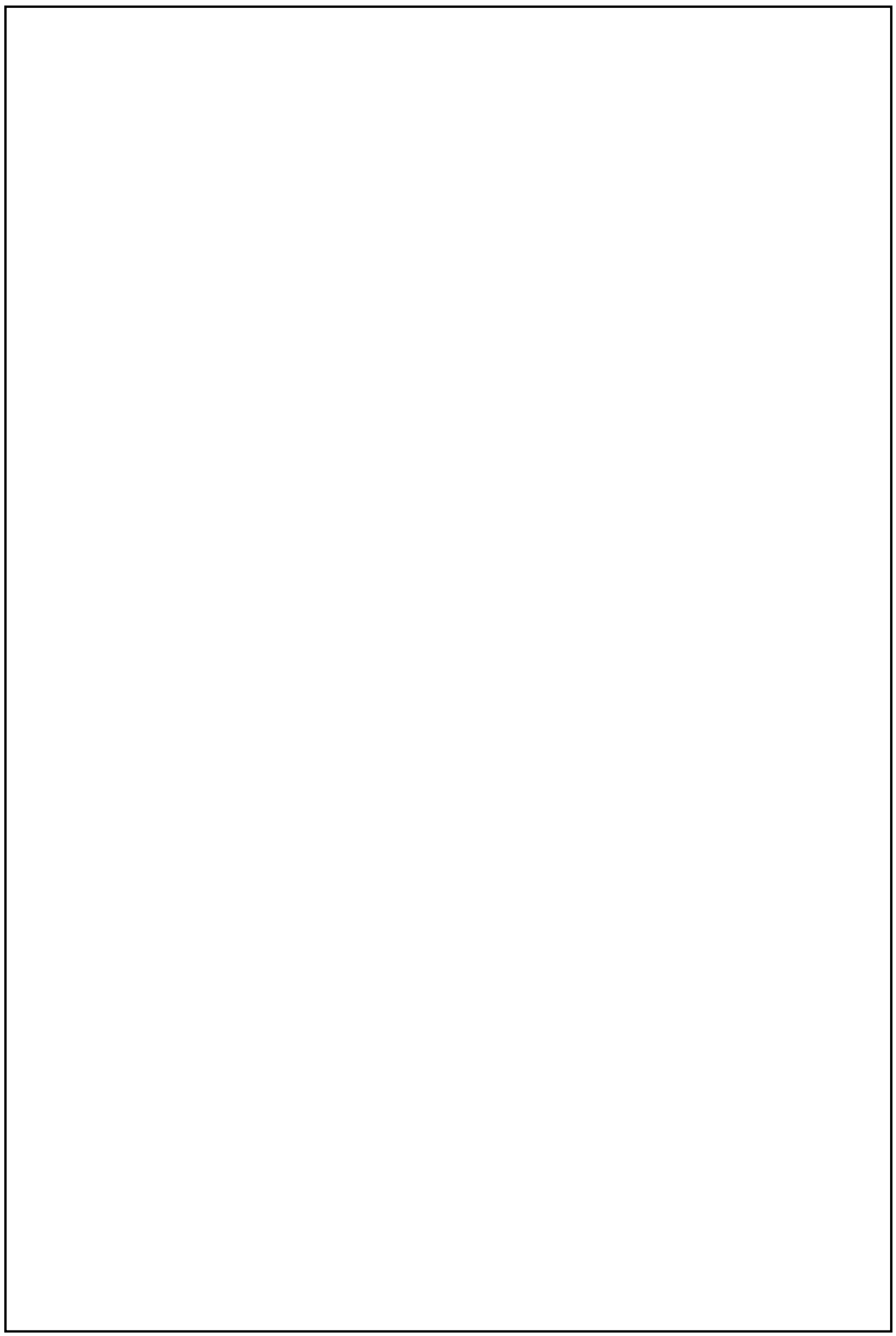
Shape Stretch Square



Shape Stretch Triangle



Shape Stretch Rectangle



The Old Lady and Probability

Math Standard V:
Students will collect and draw conclusions from data and understand basic concepts of probability.

Objective 2:
Determine the likelihood of an event.

Intended Learning Outcomes:
2. Develop social skills and ethical responsibility.
6. Communicate clearly in oral, artistic, written, and nonverbal form.

Content Connections:
Language Arts I-1, 2; Content I-3; Math V-1

Math Standard V

Objective 2

Connections

Background Information

This activity is designed to be taught and used over several lessons. Under instructional procedures, you will find ideas for different activities. No more than one activity should be taught in a day. Some activities may take several days to complete.

Invitation to Learn

Start by having the class sing the song *There Was an Old Lady* using the song cards and *Listen* CD.

Instructional Procedures

The Old Lady Spinner Activity

Before starting this activity, show the class *The Old Lady Probability Spinner* (p. 3-20) and ask the following questions: Which animal are you more likely to spin? Which are you less likely to spin? What does equally likely mean? Each student or group should spin the spinner an equal number of times and using tally marks record the outcomes on *The Old Lady Data Collection Sheet* (p. 3-21). Following this, students or groups graph their findings on *The Old Lady Graph* (p. 3-22). Students should be provided with the opportunity to share their findings with the class. The data should be compared and a class discussion on less likely, more likely, and equally likely should be facilitated.

Materials

- ❑ *There Was an Old Lady* song cards
- ❑ *Listen* CD

For each student or group:

- ❑ *The Old Lady Probability Spinner*
- ❑ *The Old Lady Data Collection Sheet*
- ❑ *The Old Lady Graph*

Materials

For each student or group:

- ❑ *The Old Lady Animal Cards*
- ❑ Brown paper bag
- ❑ *The Old Lady Data Collection Sheet*
- ❑ *The Old Lady Graph*

Choose the Animal Activity

First, students need to cut out *The Old Lady Animal Cards* (p. 3-24) and place them in the brown paper bag. Then have students draw one card out of the bag and put a tally mark on *The Old Lady Data Collection Sheet*. Have students place the card back into the bag, mix them up and draw another animal card. Have them continue drawing, placing a tally mark in the appropriate place, for a set number of times. Students graph their data on *The Old Lady Graph* and share it with the class. Another way to do this activity would be to have the students leave the card out after they draw it. Discuss how this would change the probability. Make sure students understand the terms, less likely, more likely, and equally likely.

Materials

For each student or group:

- ❑ *The Old Lady Puppet*
- ❑ Brown paper bag
- ❑ *The Old Lady Animal Cards*
- ❑ *The Old Lady Prediction Sheet*

The Hungry Old Lady Activity

Have students make *The Old Lady Puppet* (p. 3-25) and cut out *The Old Lady Animal Cards*. As the teacher, you direct the activity. Have students lay their animal cards out on their desks. Instruct the students on how many cards to put in the puppet. For example, the teacher might say, "I know an Old Lady who swallowed two dogs." The students would then put two dog cards in their puppet. Before going on the teacher should ask a probability question. For example, "If I were to reach into the Old Lady's stomach right now would I be less likely, more likely or equally likely to choose a dog?" Then have students make a prediction on *The Old Lady Prediction Sheet* (p. 3-26). Following that, have students reach into the bag and see what animal they choose. Have them mark on their paper if their prediction was correct. This activity is great for building number sense along with probability understanding.

Possible Extensions/Adaptations/Integration

There are many different children's books that are a play on *The Old Lady Who Swallowed a Fly*. Under *Additional Resources* you will find a list of some of these books. After exposing students to some of these stories, they could write their own version. This writing activity is also great practice for students to write in rhyming form. This activity could also be done as a whole class shared writing activity.

Assessment Suggestions

The Old Lady Spinner Activity and Choose the Animal Activity

One form of assessment for both of these activities would be to listen to the students as they share their findings from the activity with the class. Another assessment would be to observe the students work on the data collection sheet and graph.

The Hungry Old Lady Activity

Observing the students as they complete this activity is a great way to assess their understanding. Another way to assess this activity would be to observe the students' work on the prediction sheet.

Additional Resources

The Old Lady Who Swallowed a Bat, by Lucille Colandro; ISBN 0-439-36863-4

There Was a Cold Lady Who Swallowed Some Snow, by Lucille Colandro; ISBN 0-439-47109-5

There Was an Old Lady Who Swallowed a Trout, by Teri Sloat; ISBN 0-439-13949-X

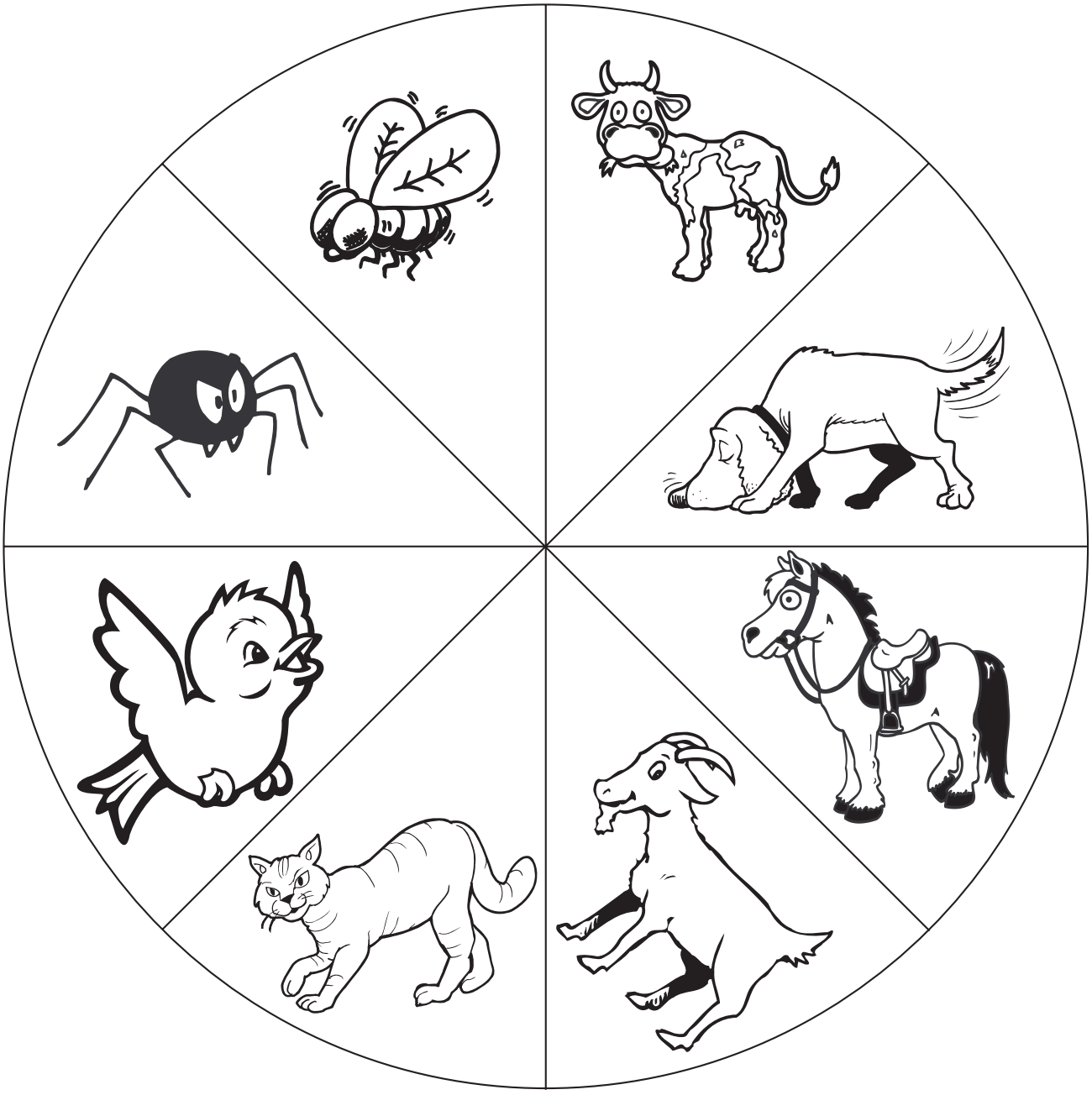
I Know An Old Lady Who Swallowed a Pie, by Alison Jackson; ISBN 0-439-36551-1

Family Connections

All of these activities are great for students to do at home with their families. Ideally, students should do the activities in class first, and then take them home and teach their family how to do the activity. A short explanation of the activity should be sent home so that parents or other family members understand the concept that should be emphasized.

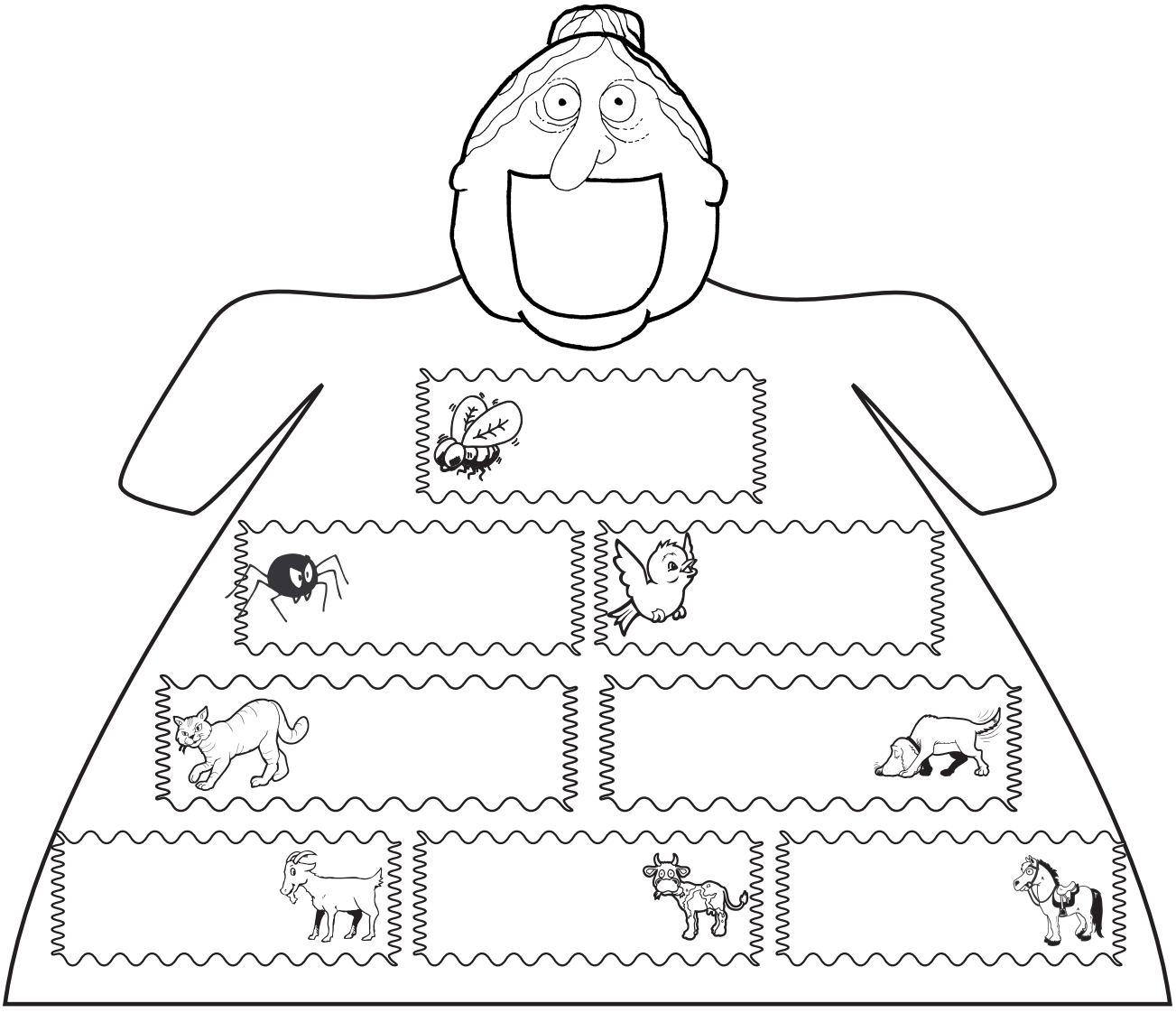
Name _____

The Old Lady Probability Spinner



Name _____

The Old Lady Data Collection Sheet



Name _____

The Old Lady Graph #1

10								
9								
8								
7								
6								
5								
4								
3								
2								
1								
	Fly	Spider	Bird	Cat	Dog	Goat	Cow	Horse

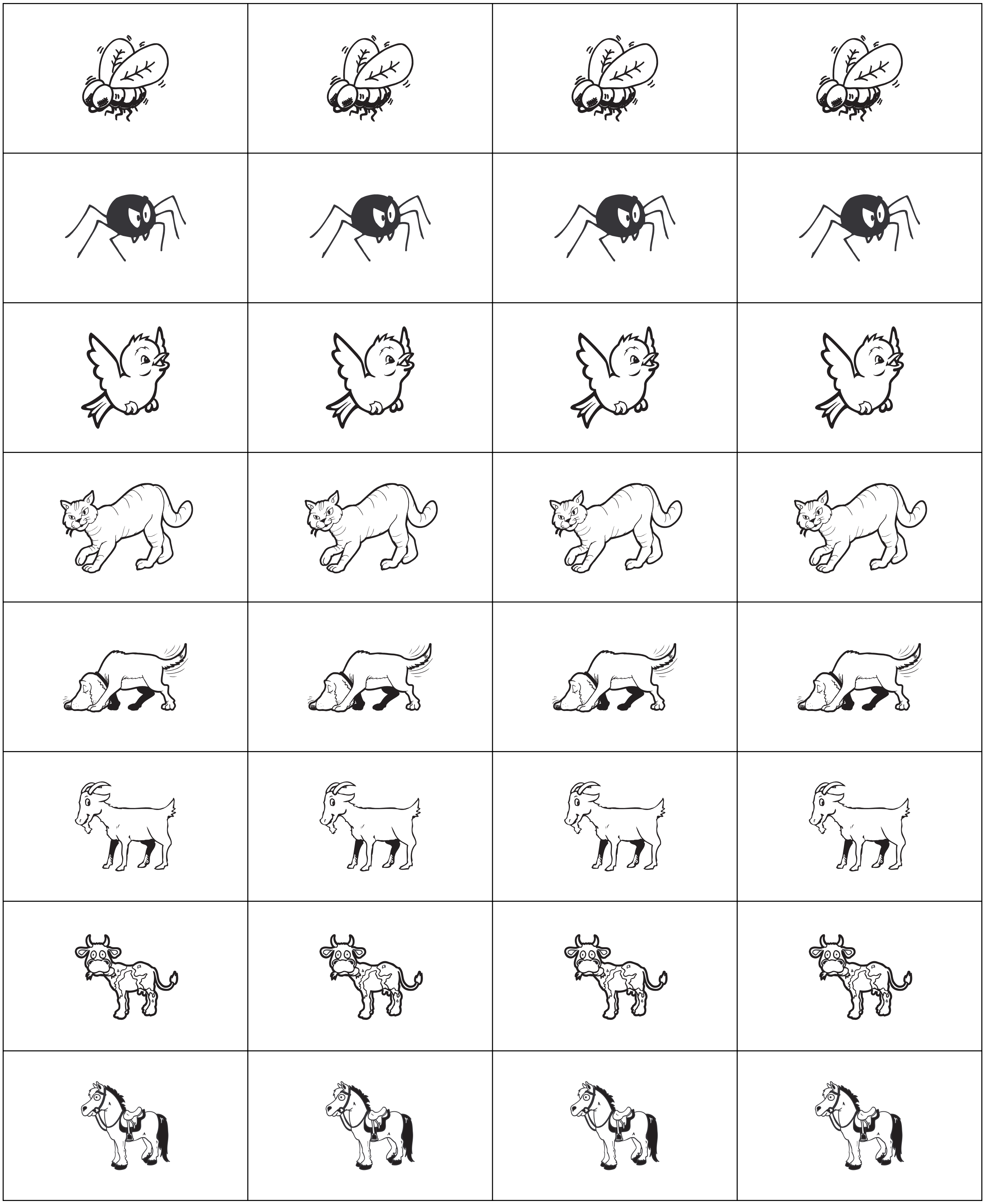
Name _____

The Old Lady Graph #2

Fly										
Spider										
Bird										
Cat										
Dog										
Goat										
Cow										
Horse										
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**

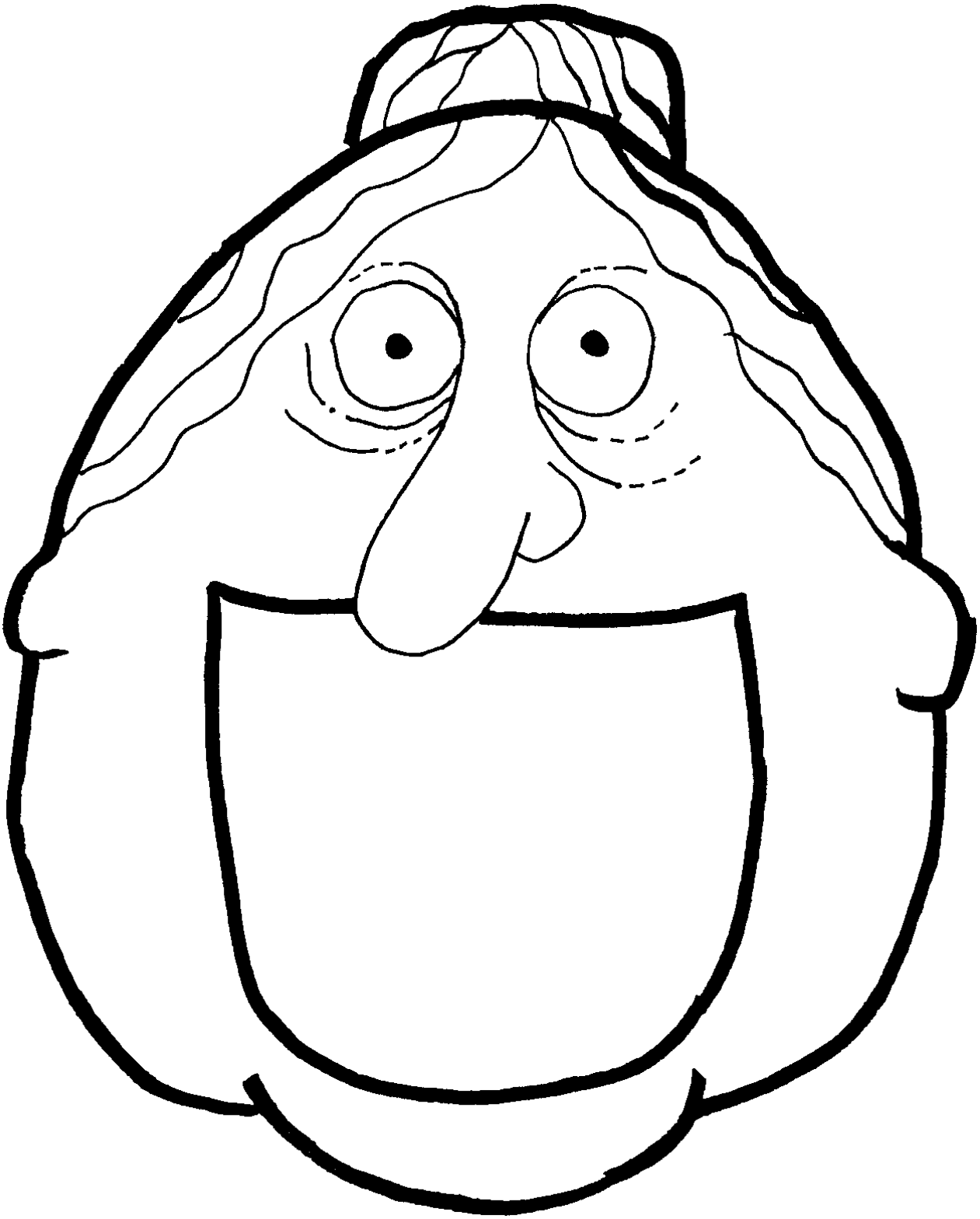
Name ___________________________________

The Old Lady Animal Cards



Name _____

The Old Lady Puppet



Name _____

The Old Lady Prediction Sheet

	What is your prediction?	What did you choose?	Were you right?
#1			yes no
#2			yes no
#3			yes no
#4			yes no
#5			yes no
#6			yes no
#7			yes no

Math Standard I Activities

Number Strips

Math Standard I:
Students will acquire number sense and perform simple operations with whole numbers.

Objective 1:
Represent whole numbers in a variety of ways.

Objective 2:
Identify simple relationships among whole numbers.

Intended Learning Outcomes:
1. Demonstrate a positive learning attitude.
6. Communicate clearly in oral, artistic, written, and nonverbal form.

Content Connections:
Language Arts VI-1

Math Standard I

Objectives 1 & 2

Connections

Background Information

One at a time have the children tell you eight numbers that are not in order (e.g., 8, 3, 1, 5, 2, 9, 4, 7). As the child says the number, the teacher (or a volunteer) writes the number on the child's *Number Strip* (p. 4-6). If a child struggles, place number cards on a table so the child can look at the numbers to help them say a number.

Place a picture of the child in the top section of the number strip. It is helpful to laminate these number strips so that they last throughout the school year.

Invitation to Learn

We don't always work with numbers in order. Sometimes they are all mixed up or random. We need to be able to recognize numbers whenever we see them. We are going to practice recognizing numbers with our number strips.

Instructional Procedures

Class Activity

After all the children have created their own personal number strips, you are ready to do this activity.

1. Have each child get ten counters and place them at the top of their desks.
2. The teacher tells the children that each time she says a number, the children are to show that number of counters in the center of their desk.

Materials

- ❑ *Number Strip*, one per child (personalized)
- ❑ Counters (e.g., Unifix cubes, buttons, etc.)
- ❑ Ten-frames

3. The teacher reads off of the teacher's *Number Strip*. Each child should show the number the teacher says.
4. After the teacher reads the number, s/he should check to see how the children represent the number with counters. Make sure the children understand they are to make just the number that was last read.
5. The teacher should read through his/her entire number strip to be sure the children understand the activity. The teacher needs to verbalize that as the reader of her *Number Strip*, she also needs to check to see if her partner (the children) has shown the correct amount of counters on his/her desk.

Paired Activity

Once the children understand how to show the number, tell them that they will work in partners.

1. While one child reads his/her strip one number at a time, his/her partner places that many counters on his/her desk.
2. The child reading the number checks to make sure that his/her partner has placed the correct number of counters on the desk.
3. After checking, the child reads the next number.
4. The children change roles and the second child now reads his/her strip.
5. As the children do this activity, the teacher circulates around the room observing how each child creates the number that s/he hears.

Possible Extensions/Adaptations/Integration

- Choose a number and add that number to each number that is read.
- Subtract one.
- Double the number read.
- Show whether the number is odd or even.
- Show the number that is one larger.
- Show the number that is one smaller.
- Using place value blocks, show the number of tens and ones and say that newly created number.

Assessment Suggestions

The teacher should circulate through the room and observe the children. Possible observations are:

- child grabs the correct number of counters,
- child counts each counter starting with one,
- child counts by twos to the correct number,
- child grabs a few and then counts on to the number,
- the child clears his/her desk for each new number, and/or
- child increases or decreases the amount of counters already on the desk.

This will help the teacher to understand the number sense that the child has.

Additional Resources

The Cheerios Counting Book, by Barbara Barbieri McGrath; ISBN 0-590-68357-8

Just Enough Carrots, by Stuart Murphy; ISBN 0-06-446711-2

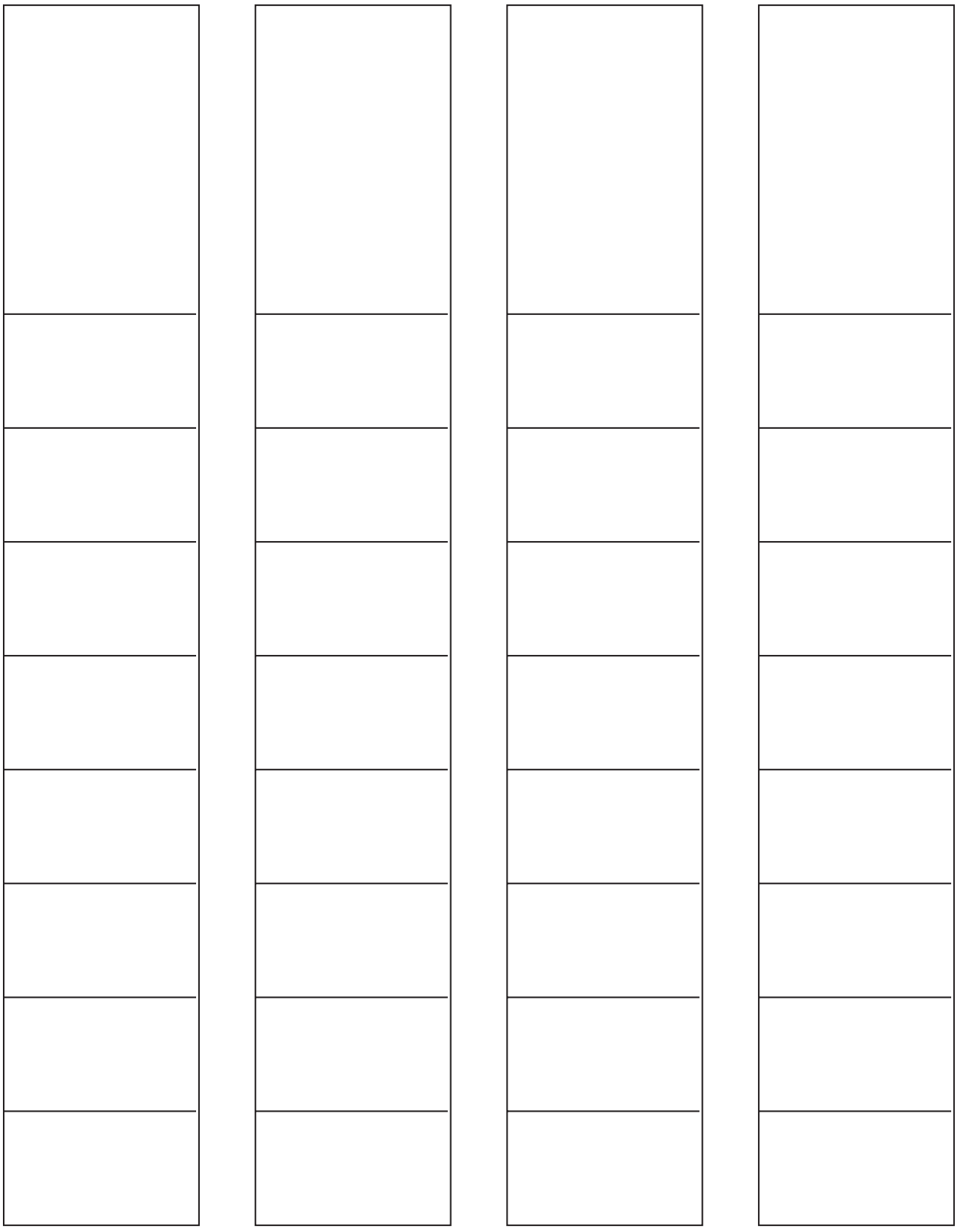
The Grapes of Math, by Greg Tang; ISBN 0-439-221033-X

Looking for Numbers, by Margie Burton, Cathy French, and Tammy Jones; ISBN 1-58344-208-1

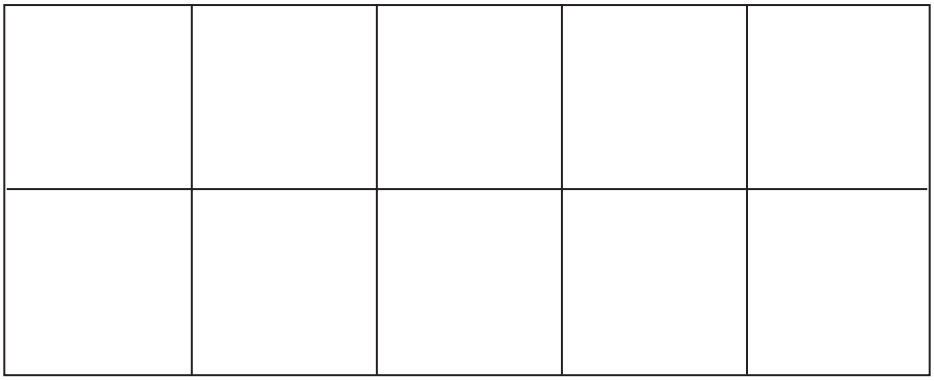
Family Connections

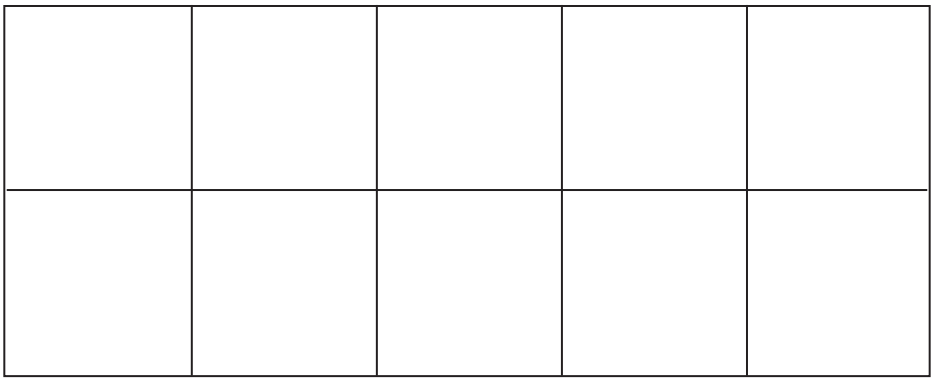
A copy of the child's *Number Strip* can be sent home for the child to practice. Make sure that the children understand this activity very well before you send it home. Be sure to include a blank number strip for the parent to complete. You may choose to send home a short parent letter explaining this activity.

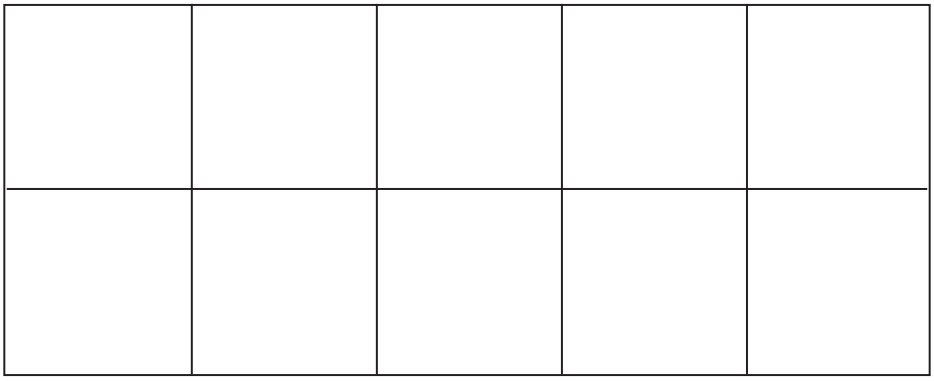
Number Strips

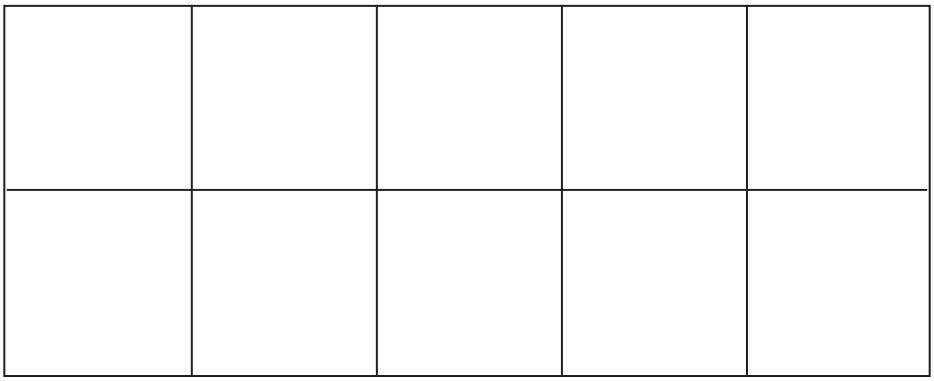


Ten-frames









Number Sense Sampler

Standard I

Objectives 1, 2, & 3

Connections

Math Standard I:
Students will acquire number sense and perform simple operations with whole numbers.

Objective 1:
Represent whole numbers in a variety of ways.

Objective 2:
Identify simple relationships among whole numbers.

Objective 3:
Model and illustrate meanings of the operations addition and subtraction and describe how they relate.

Intended Learning Outcomes:
1. Demonstrate a positive learning attitude toward mathematics.
6. Communicate clearly in oral, artistic, written, and nonverbal form.

Content Connections:
Language Arts VIII-2

Background Information

Children need a variety of experiences with manipulatives to help develop number sense. Children need their hands on manipulatives. They need to touch and see the number over and over again. We should not jump to symbolic representation of numbers too quickly. Let children have time to explore numbers freely.

Invitation to Learn

Read *Add the Animals* to the class. Share your excitement about the book with the students.

Instructional Procedures

Materials

- ❑ Counters (two different colors)
- ❑ Bead counter (that participants will make)
- ❑ Overhead dice spinner

On the third or fourth reading say to the children "As I read the book I would like you to show me the math problem with your counters. Remember to use two colors of counters—one for the first amount and a different color for the second amount. Also, have the two amounts separated on your desk."

Possible Extensions/Adaptations/Integration

- Have the children write their own page (or book) using the format from *Add the Animals*. *Kid Pix Delux*, a computer program, can be used to facilitate the creation of the book.
- Put *Add the Animals* in a literacy center and have the children cooperatively create a classroom book.
- Compare *Icky Sticky Spider* to *Add the Animals*.
- Act out *Icky Sticky Spider*.

Assessment Suggestions

- As you read to students, do not show them the pages of the book. Observe how the children model the math problems with their counters.
- When the children illustrate their books have them include the number sentence below the illustration. Check to see how easily they are able to place symbols to the picture.

Additional Resources

Books

Add the Animals, by Margie Burton, Cathy French, and Tammy Jones; ISBN 1-58344-188-3

Adding It Up at the Zoo, by Judy Nayer; ISBN 0-7368-7029-6

Icky Sticky Spider, by Calvin Irons and Margory Gardner; ISBN 1-5769-9389-2

Family Connections

Choose some books to send home with the children to buddy read with their parents that focus on number sense. An example, *Five Little Monkeys Jumping on the Bed*. As they read they should stop and say the number sentence (e.g., five minus one equals four). You will need to model this in your classroom before the children try it at home.

Lu-Lu

Standard I

Objective 2

Connections

Math Standard I:
Students will acquire number sense and perform simple operations with whole numbers.

Objective 2:
Identify simple relationships among whole numbers.

Intended Learning Outcome:
6. Communicate clearly in oral, artistic, written, and nonverbal form.

Content Connections:
Language Arts I-1, VII-5

Background Information

Lu-Lu is a Hawaiian counting game. It is played with four stones. Each stone is divided into four equal sections and dots are placed in the sections. The stone has a value of one, two, three, and four depending on the number of dots on it. One side of the stone is blank.

Invitation to Learn

We are going to play a game that the children in Hawaii play. It's called Lu-Lu. Has anyone ever heard of it or played it?

Instructional Procedures

Materials

- ❑ A set of Lu-Lu stones for each pair of children.

You play Lu-Lu with four stones (or counters). A set of Lu-Lu stones includes a stone with one dot, a stone with two dots, a stone with three dots, and a stone with four dots. You and a partner will take turns seeing who scores the greater number of points.

After the children have played for five minutes bring them together to talk about the game. What did they notice? Is the game fair?

Possible Extensions/Adaptations/Integration

- Have the children see how many turns it takes them to get a score of zero, of one, of two, etc.
- Have students complete the *Lu-Lu Stones* worksheet (p. 4-12).

Assessment Suggestions

- Observe how the children calculate their score.
  - Do they count each dot?
  - Do they group dots?
  - Do they count on?
  - Do they guess the total?
  - Do they ask their partner for help?
  - Does one partner seem to dominate play?
- Do the children enjoy the game? The children can get a great deal of practice adding more than two numbers at a time. Adding small numbers (0-4) provides the children with numbers that aren't so large that they doubt themselves.

Additional Resources

Book

Math to Learn, by Mary C. Cavanagh; ISBN 0-669-48872-0

Web sites

http://www.nctm.org

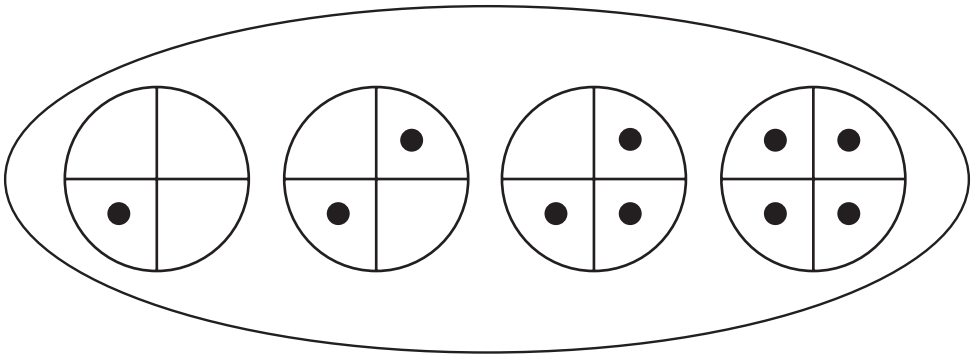
http://illuminations.nctm.org/

Family Connections

Send home a set of Lu-Lu stones for the children to play the game with their family. Ask them to report back to the class (orally and/or written form) how the game went with their family.

Name _____

Lu-Lu Stones



With Lu-Lu stones can you get any of these scores?
Show how.

0	**8**
1	**9**
2	**10**
3	**11**
4	**12**
5	**13**
6	**14**
7	**15**

Celebrating 100

Math Standard I:
Students will acquire number sense and perform simple operations with whole numbers.

Objective 1:
Represent whole numbers in a variety of ways.

Intended Learning Outcomes:
1. Demonstrate a positive learning attitude.
5. Understand and use basic concepts and skills.
6. Comunicate clearly in oral, artistic, written, and nonverbal form.

Content Connections:
Language Arts VII-2, VIII-5; Content I-3

Math Standard I

Objective 1

Connections

Background Information

Beginning on the first day of school, start counting the days until the 100th day of school. Keep multiple forms of this—whether it is a tally chart, a strip of paper where you record each day, and/or a 100 chart. Talk about the importance of the number zero. It means more than nothing.

Invitation to Learn

There is one day of the year I always look forward to—the 100th day of school. If we didn't have zero we could not represent 100 with our place vlaue system. Would we be able to represent ten? I'm going to read *The Pentathlon*. I'd like you to consider why I chose to read this book to you today.

Instructional Procedures

For the 100th day of school plan some type of celebration. Here are a few ideas:

- Read the book *One Hundred Hungry Ants.*
- Create a 100 badge to wear.
- Look for and circle 100 sight words in the newspaper.
- How many times can you write your name in 100 seconds?
- Cooperatively create a picture made with 100 squares of paper.
- Using interactive writing to make a bulletin board of 100 words that everyone in the class can read.
- Make a necklace out of 100 Fruit Loops.

Materials

- ❑ *The Pentathlon*
- ❑ Counters (e.g., Unifix cubes, teddy bears, buttons)
- ❑ *Hundreds Chart*

Possible Extensions/Adaptations/Integration

- Write about what zero means.
- Write about what you did on the 100th day of school.
- Compare two "100 books."
- Draw a picture of how you will look in 100 years.

Assessment Suggestions

- As the children work with 100 objects, can they group them by fives and tens? Do they understand what value the one and what each one of the zeros means in 100?
- Have them write the number 101. Did they write it correctly? If they did, can they explain why they did it that way?
- Give the children multiple experiences with manipulatives in counting to 100 and observe how they count.

Additional Resources

Books

100th Day Worries, by Margery Cuyler; ISBN 0-439-18807-5
Along Came Greedy Cat, by Joy Cowley; ISBN 0-478-12001-X
Exploring The Numbers 1 to 100, by Mary Beth Spann; ISBN 0-590-49506-2
From One to One Hundred, by Teri Sloat; ISBN 0-590-48661-6
Greedy Cat's Breakfast, by Joy Cowley; ISBN 0-7802-2404-3
Greedy Cat is Hungry, by Joy Cowley; ISBN 0-478-12109-1
The M&M's Count to One Hundred Book, by Barbara Barbieri McGrath; ISBN 1-57091-571-7
One Hundred Hungry Ants, by Elinor J. Pinczes; ISBN 0-395-63116-5
One Hundred Ways to Get to 100, by Jerry Pallotta; ISBN 0-439-38913-5
The Pentathlon, by Calvin Irons and Chris Lynch; ISBN 1-5769-9397-3
A Place for Zero, by Angelina Sparagna LoPresti; ISBN 1-57091-196-7
What Does Greedy Cat Like?, by Joy Cowley; ISBN 0-478-12204-7
What Is Place Value?, by J.E. Osborne; ISBN 1-58273-150-0
The Wolf's Chicken Stew, by Keiko Kasza; ISBN 0-399-22000-3

Family Connections

- Send home a letter requesting that each child bring one hundred small items in a baggie to school by the 100th day of school.
- Have the children choose an item to count in their house that they believe totals 100 (e.g., coins in a jar, button collection, books, toys, etc.).
- Ask if anyone knows someone who is 100 years old. Could they bring a picture of that person or have that person come to visit?

Homework for the 100th Day of School

Greedy Cat is greedy.
He likes to eat and eat.
He is always hungry.
Greedy Cat will eat and eat all day.

Greedy Cat went to a farm.
Greedy Cat went to Mrs. Wishy-washy's farm.
Greedy Cat met a cow. Greedy Cat ate the cow's hay.
Greedy Cat met a duck. Greedy Cat ate the duck's pellets.
Greedy Cat met a pig. Greedy Cat ate the pig's slop.
Greedy Cat met a dog. Greedy Cat ate the dog's treat.
Greedy Cat went into Mrs. Wishy-washy's house.

Mrs. Wishy-washy was fixing breakfast. Greedy Cat
jumped on the table and …

Dear Parents,

Tomorrow is the 100th day of school. There are many exciting activities planned for the day. One of the activities is homework for the 100th day of school. It has 100 words for your child to practice reading at home. Each child will individually read this sheet to me on the 100th day. Your child should practice reading this homework with fluency and power.

Happy 100th Day,
Miss Damjanovich

Zero Hero's Ten Tens Treat

Count carefully each of the following
Items into your baggie to make a
Zero Hero 100th Day treat.

*ten chocolate chips
*ten raisins
*ten walnuts
*ten banana chips
*ten pretzels
*ten white chocolate chips
*ten Chex cereal
*ten sunflower seeds
*ten cranberries
*ten apple chips

Seal the baggie and shake shake shake.
Eat the treat slowly to enjoy it all day long.

Zero Hero's Ten Tens Treat

Count carefully each of the following
items into your baggie to make a
Zero Hero 100th Day treat.

*ten chocolate chips
*ten raisins
*ten walnuts
*ten banana chips
*ten pretzels
*ten white chocolate chips
*ten Chex cereal
*ten sunflower seeds
*ten cranberries
*ten apple chips

Seal the baggie and shake shake shake.
Eat the treat slowly to enjoy it all day long.

Hundreds Chart

5 | 50 94 | 46 | 945

973088976 3657

866752832 7608

4022328644709

648233078580 4

2364471077235

3 | 457498930 46

0587 | 864 | 8857

720929507 6968

| 6 | 7892663790

Name _____

Calculator Skip Counting

With a calculator I found out that sometimes you can skip count to 100.

	Yes	No
ones		
twos		
threes		
fours		
fives		
tens		

Name _____

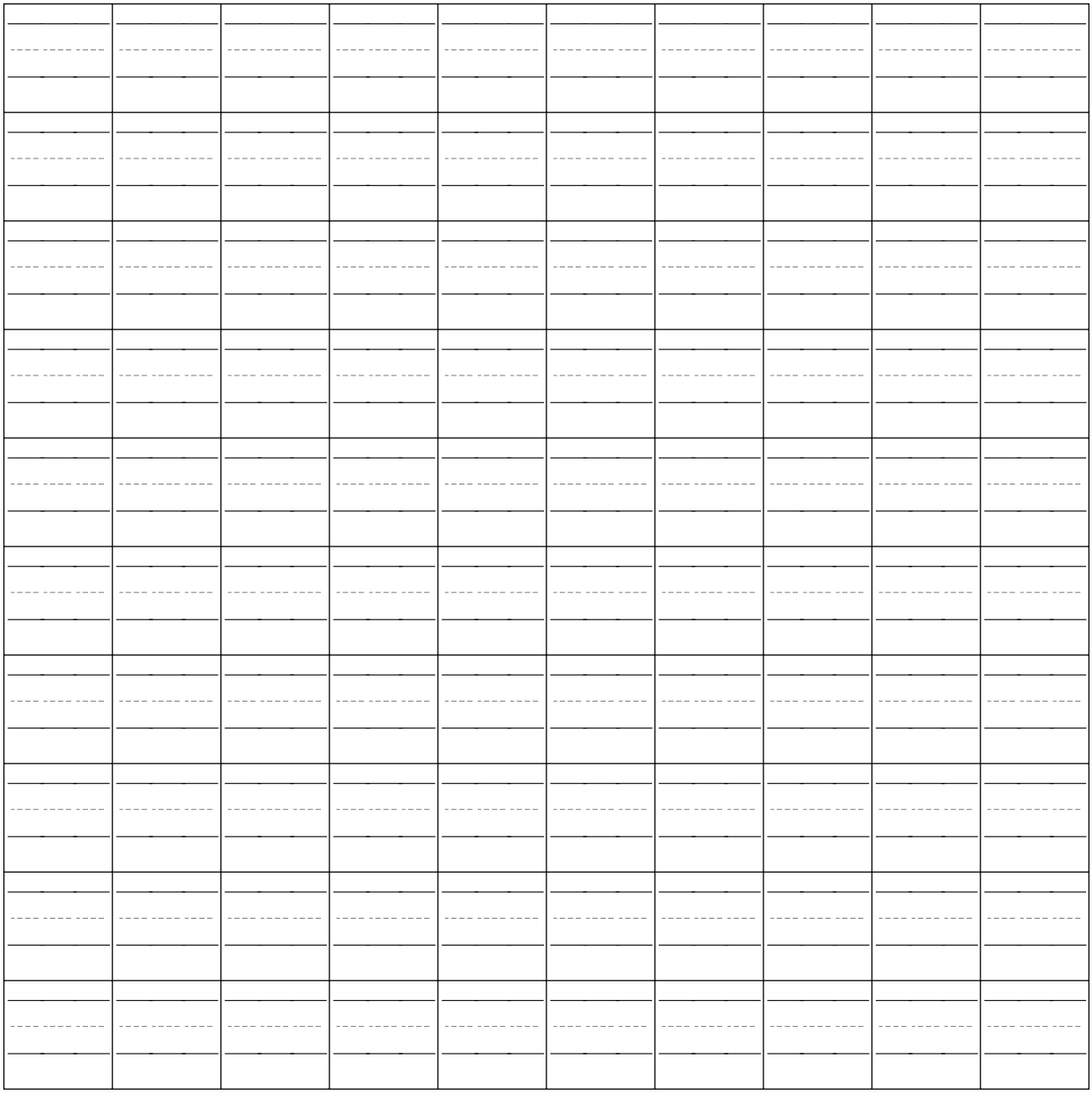
Calculator Skip Counting

With a calculator I found out that sometimes you can skip count to 100.

	Yes	No
ones		
twos		
threes		
fours		
fives		
tens		

Name _____

Hundred Grid Spelling



I can write my spelling words in the one hundred grid.

Content Standard II Activities

Family Responsibilities

Content Standard II:
Students will develop a sense of self in relation to families and community.

Objective 1:
Describe behaviors that influence relationships with family and friends.

Intended Learning Outcomes:
2. Develop social skills and ethical responsibility.
6. Communicate clearly in oral, artistic, written, and nonverbal form.

Content Connections:
Language Arts VIII-1, 2, 3; Math II-1, III-2

Content Standard II

Objective 1

Connections

Background Information

Teachers need to be aware of intended learning outcomes. Nearly all of the objectives deal with the first grader in relationship to the family and community. Teachers should also be aware of various household responsibilities needed to make the family unit function.

Invitation to Learn

Have a class discussion of all the jobs families have to do around the house. Teacher will use shared writing to make a list of jobs (e.g., washing dishes, making beds, taking out garbage, etc.).

Instructional Procedures

1. During class discussion, talk about the possible jobs each family member may do in the home.
   a. Given picture cards of each task, students will decide which family member would best perform the given task.
   b. Teacher will help students to understand that it takes everyone in the family to run a home.
2. Teach *Task Song* (p. 5-5).
3. Give each student a *Family Task Puzzle* (p. 5-6) to label with family member names and what task they do at home.
4. Students will record their learning in a *Create-A-Log*.
   a. Make a response log for *Create-A-Log Coupons* (p. 5-16).
   b. Choose a *Create-A-Log Coupon* to determine your response.

Materials

- ❑ Chart paper
- ❑ 8” x 10” paper
- ❑ Task cards
- ❑ *Task Song*
- ❑ *Create-A-Log Coupons*
- ❑ *Family Task Puzzle*

Possible Extensions/Adaptations/Integration

Use a Venn Diagram to compare student tasks with the jobs that other family members do. Students will be able to see which are the same and which are different.

Assessment Suggestions

- During discussion and writing time, check for understanding of whether job descriptions are appropriate.
- Use Venn Diagram to check for understanding.
- Students will record their learning in their personal *Create-A-Log*.

Family Connections

- Students will take a *Family Task Puzzle* home to complete with actual family jobs.
- Students may sing *Task Song* and tell of meaning.
- Students may share their entry in their *Create-A-Log*.

Task Song

Family Tasks
(Sung to the tune of Did You Ever See a Lassie?)

Did you ever see a Daddy take out garbage, take out garbage?
Did you ever see a Daddy take out garbage like this?
He pulls out the bag and he ties up the top,
Then he takes it to the big can
And drops it inside.

Did you ever see a Mommy clean the windows, clean the windows?
Did you ever see a Mommy clean the windows like this?
First she soaps them, then rinses, then squeegees to shine them,
Then she does it all over
On the window's other side.

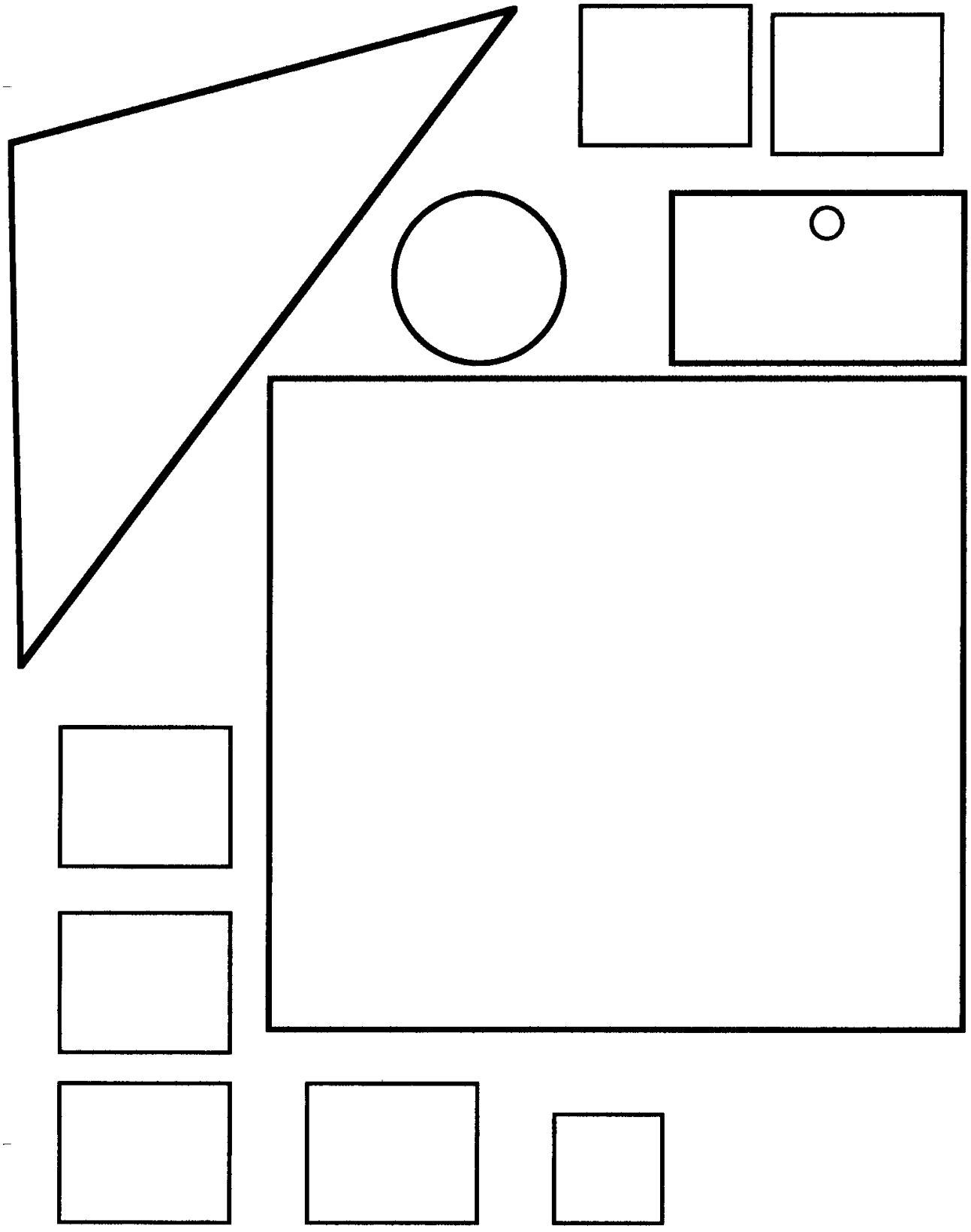
Did you ever see a brother vacuum the front room?
Did you ever see a brother vacuum the front room like this?
First he goes back and forth over all of the carpet,
Then he pulls out all the furniture
And cleans underneath.

Did you ever see a brother pick up toys, pick up toys?
Did you ever see a brother pick up toys like this?
First he picks up transformers,
The cars and all trucks,
Then he finds the little Legos
And puts them away.

Did you ever see a sister do the dishes, do the dishes?
Did you ever see a sister do the dishes like this?
First she fills up the sink, then dumps in the dishes,
Then she scrubs the goo and rinses,
Then sets them to drain.

Did you ever see a 1st grader set the table, set the table?
Did you ever see a 1st grader set the table like this?
First the cups and the plates,
Then a knife, fork, and spoon,
Then I get myself a napkin
And sit down to eat.

Family Task Puzzle



Choices and Consequences

Content Standard II:
Students will develop a sense of self in relation to families and community.

Objective 1:
Describe behaviors that influence relationships with family and friends.

Intended Learning Outcomes:
2. Develop social skills and ethical responsibility.
3. Demonstrate responsible emotional and cognitive behaviors.

Content Connections:
Language Arts VII-1, 2, VIII-1, 6; Math III-1

Content Standard II

Objective 1

Connections

Background Information

Teachers should be prepared to discuss daily choices and their consequences. Teachers should be sensitive to family diversity and cultural backgrounds. Children should have an understanding of what a consequence is.

Invitation to Learn

Show class the book *The Red Racer* by Audrey Wood. Have students predict what might happen in the story. If you wanted a new bike, what could you do to get it? Read story.

Instructional Procedures

1. Make a chart showing the choices and consequences that happened in the story. Discuss how the ending of the story could have been different if Nona had made different choices.
2. As a shared writing activity or interactively, make a list of possible choices that students have each day.
   a. Choose one of the items given by the students as a choice in their day.
   b. Use a cube that has "right choice" and "wrong choice" written on it and roll the cube.
   c. Have a student describe what they think the right or wrong choice is and then a consequence.
3. Students will make their own cube to practice choice and consequence.
   a. Pass out *School Choices* worksheet (p. 5-9).

Materials

- ❏ Colored paper
- ❏ Chart paper/marker
- ❏ Punch-out of a cube
- ❏ Right/wrong choices cube
- ❏ *The Red Racer*
- ❏ *School Choices* worksheet
- ❏ *Create-A-Log*
- ❏ *Create-A-Log Coupons*

b. Working with a partner, students will practice picking a situation, rolling the cube, and telling each other whether it is a right/wrong choice and the consequence.

4. Students will demonstrate their learning in their *Create-A-Log* by choosing a *Create-A-Log Coupon* and making the appropriate response.

Possible Extensions/Adaptations/Integration

Write a story where the main character has to make a choice and deal with the consequence. It could be a story that has two endings, depending on the choice. Adapt for emergent learners by allowing them to make a picture story instead of a written one.

Assessment Suggestions

- Assess *Create-A-Log.*
- Take notes during class discussions regarding who understands the idea of making a choice and receiving the consequence.
- Observe as students practice activity with partner.
- Use a rubric to assess written stories.

Additional Resources

Books

Milo and the Shiny Stones, by Marcus Pfister; ISBN 1-55858-682-2

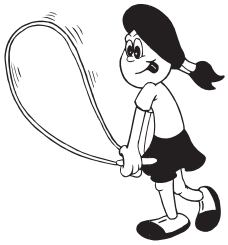
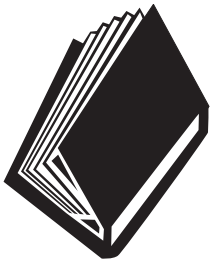
The Red Racer, by Audrey Wood; ISBN 0689826826

Family Connections

- Send a blank *Home Choices* worksheet home with students. Have them decide as a family some situations where choices must be made at home. These could be returned to discuss at school.
- Let children take their "choice" cube home to practice with their family.
- Have students write a "choice/consequence" story at home about a family decision.

Name _____

School Choices

What do you wear to school? 	☺	☹
What do you eat for breakfast? 	☺	☹
What do you do during recess? 	☺	☹
What do you do in the lunchroom? 	☺	☹
What do you do during story time? 	☺	☹
What do you do after school? 	☺	☹

Personal Patriots

Content Standard II

Objective 2

Connections

Content Standard II:
Students will develop a sense of self in relation to families and community.

Objective 2:
Describe important aspects of the community and culture that strengthen relationships.

Intended Learning Outcomes:
2. Develop social skills and ethical responsibility.
6. Communicate clearly in oral, artistic, written, and nonverbal form.

Content Connections:
Language Arts VII-2, VIII-6

Background Information

Our country was founded on citizen input toward the making of our rules and the responsibility to follow them. The first thing we do in a classroom each year is establish rules. Citizens who uphold the rules of our country are called patriots. Each student should become knowledgeable enough to understand and follow the rules personally, in our classroom and our country.

Teachers should have knowledge of the symbols used to represent our country and how they came to be.

Invitation to Learn

Play the song *Pledge of Allegiance* or say the pledge together.

Instructional Procedures

Materials

- ❑ *Pledge of Allegiance* song
- ❑ Chart with "First, Next, Then, Last"
- ❑ *Create-A-Log*
- ❑ *Symbols of America*
- ❑ *Pledge of Allegiance*

Part I

1. Discuss the sequence used to say the Pledge of Allegiance using the words; first, next, then, and last.
2. Discuss the proper way to say the pledge.
3. Tell students what should happen; first, next, then, and last. Make a chart displaying the steps for saying the pledge.
4. Classroom procedures should be written in this same process, either as a shared activity or interactively.
5. Practice saying the Pledge of Allegiance.
6. Have students record in their *Create-A-Log* their understanding of the procedure to say the Pledge of Allegiance.

Part II

1. Show symbols of things the children already know (e.g., a STOP sign, pedestrian crossing sign, etc.).
2. Discuss why we have symbols.
3. Create a K-W-L chart to see what knowledge children have of the *Symbols of America* (p. 5-15).
4. Read the story, *The Pledge of Allegiance* and discuss the flag as a symbol. Also discuss the symbols on the flag.
5. Using sign language as a type of symbol, teach the pledge using sign language (p. 5-13).
6. Have each student draw a picture of themselves. Assign some to color the background blue, some white, and some red. These pictures can be glued on a chart paper to make a flag with pictures of all your class "patriots."

Possible Extensions/Adaptations/Integration

- Sing the *Pledge of Allegiance* song and include sign language.
- Students record in their *Create-A-Log* how they feel about the pledge and learning it.
- Find someone with a hearing disability and share the pledge by signing.
- Use the same process to retell stories you have read in class or reading groups. What happened first, next, then, and last?

Assessment Suggestions

- Check students' written responses to see if they understand the proper procedure for saying the pledge.
- Have students recite the pledge to a partner in another class to see if they know it all.
- Watch daily recitations during pledge.

Additional Resources

Book

The Pledge of Allegiance, (Scholastic, Big Book Collection, Item# NTS932205, includes teacher guide); ISBN 0-439-21672-9

Web sites

http://www.usflag.org/i.am.the.flag.html

Check UEN Web site http://www.uen.org

Family Connections

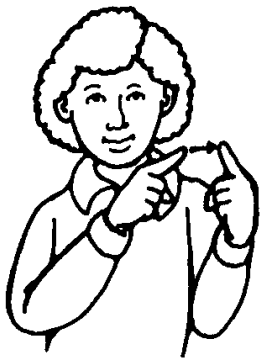
- Share with parents the “first, next, then, last” process. Ask them to help the student write one of their home rules in the same process.
- Students will share the pledge in sign language with parents.

Name _____

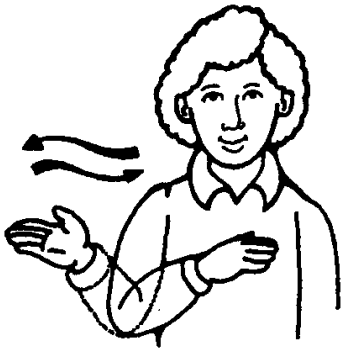
The Pledge of Allegiance

I pledge

allegiance



to

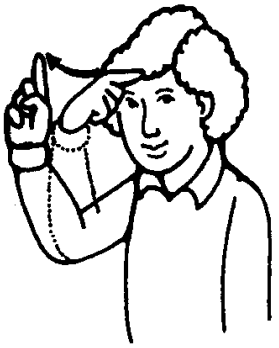


the flag

of the United States of America

and to

the republic



for

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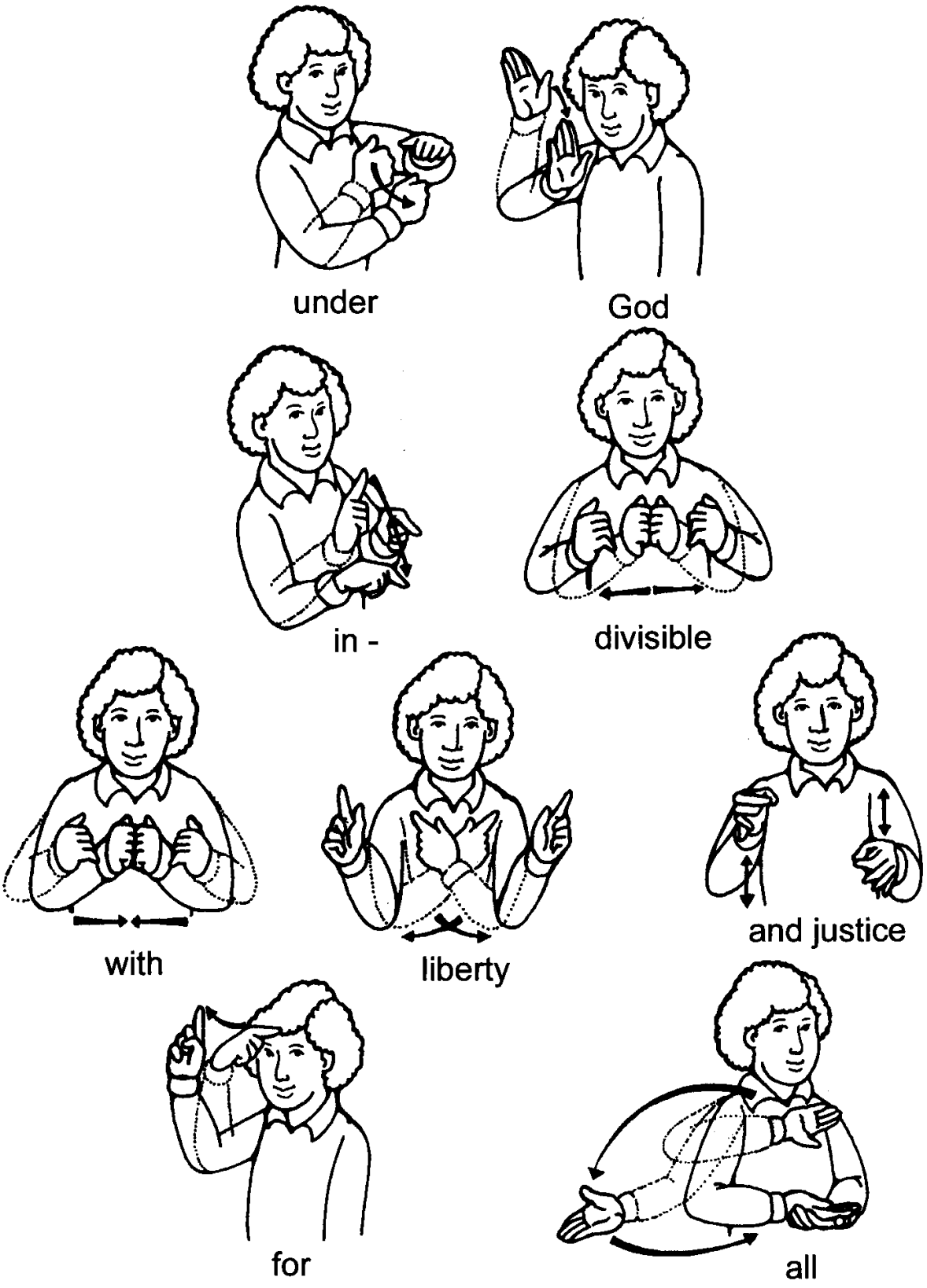
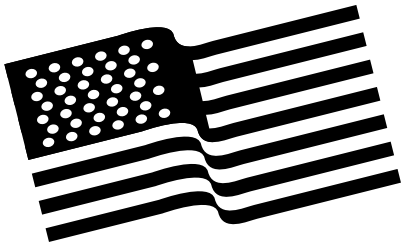
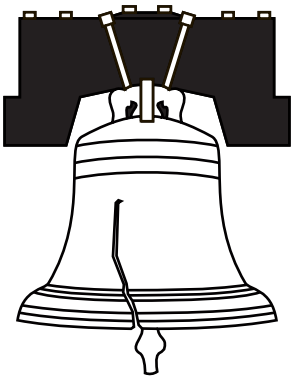

under
God
in -
divisible
with
liberty
and justice
for
all

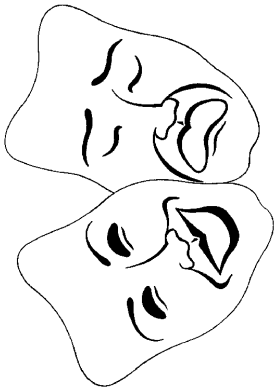
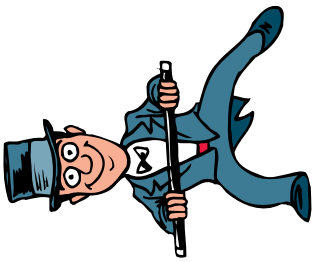
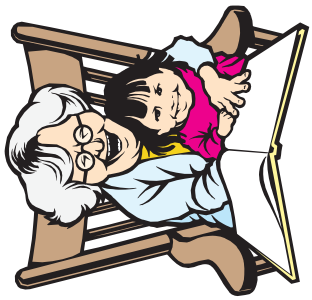
Name _____

Symbols of America





Create-A-Log Coupons

Drama Coupon 	**Poetry Coupon** 	**Dance Coupon** 
Music Coupon 	**Art Coupon** 	**Storytelling Coupon** 

Math Standards II and III Activities

Missing Number

Math Standard II:
Students will identify and use patterns and relations to represent mathematical situations.

Objective 2:
Recognize and represent relations using mathematical symbols.

Intended Learning Outcomes:
2. Develop social skills and ethical responsibility.
5. Understand and use basic concepts and skills.

Content Connections:
Math I-3

Math Standard II

Objective 2

Connections

Background Information

This lesson focuses on using a symbol/shape variable to represent a missing value in a mathematical equation. Students need to be proficient with the addition and subtraction of numbers 0-10.

Invitation to Learn

Read the story *Fish Eyes* (for addition) or *One Less Fish* (for subtraction). As the story progresses, stop at each page and write the equation represented using a variable for the answer. Have the students come up with the missing value for the variable. Use a different shape symbol for each page so students get the idea that a variable can be represented many different ways.

Instructional Procedures

Whole Group Activity

1. Show a variety of symbols/shapes to students and teach them that the shape's job is to hold the place of the missing value or number. Make sure they have made the connection to how it was used in place of the missing sum or difference in the story.
2. Have the large *Symbol Cards* (p. 6-6) and *Number Cards* (p. 6-7) in separate paper bags. Select two students to pick numbers from the number bag and one student to pick a symbol. Also, select two students to be the addition or subtraction sign and the equal sign.
3. Have selected students put themselves in the correct order to form an equation. Have another student give the sum or difference of the equation. Repeat this process several times.

Materials

- ❑ *Fish Eyes*
- ❑ *One Less Fish*
- ❑ *Symbol Cards* (large and small)
- ❑ *Number Cards* (large and small)
- ❑ Two paper bags
- ❑ *Missing Number* independent practice pages

4. After the activity, using the small *Number Cards* and *Symbol Cards*, repeat the process by placing addends or minuends on the board to the left of the = sign with a shape on the right of the = sign, forming an equation.
5. Students provide the missing sum or difference by writing it on the shape, or use number tiles for students with writing deficiencies. Repeat this process until the students understand the meaning of the shape.
6. Switch the placement of the addends or minuends to the right of the = sign and the shape on the left, forming the reciprocal of the equation, and allow students to provide the missing sum or difference again. Repeat as needed for students to clearly understand.

Small Group Activity

1. Distribute *Missing Number* independent practice pages (p. 6-8) to students.
2. With a partner, students practice making mathematical sentences with a group of numbers 0-9 and an assortment of shapes.
3. Students write the sum or difference (depending on the worksheet) on the shape.

   Hint: Carefully select addends so sums will not be higher than 12 and minuends so differences will not be negative. Watch carefully how students represent subtraction equations.

Possible Extensions/Adaptations/Integration

- Place the shape in place of one of the addends or minuends in a mathematical sentence to extend as a follow-up lesson.
- This lesson provides the background information needed for a lesson on addend order (Standard 2, Objective 2,c).

Assessment Suggestions

- Observe during the lesson which students are able to represent an equation with the proper symbols and which students may need teacher assistance during the partner-guided practice. Partner those students who struggle with a student who understands, using them as a peer tutor. Use the partner-guided practice as an informal assessment tool. Note which students may need extra help.

Additional Resources

Books

M&M's Counting Book, by Barbara Barbieri McGrath; ISBN 0-88106-853-5

Hershey's Kisses Addition Book, by Jerry Pallotta; ISBN 0-439-24179-1

Hershey's Kisses Subtraction Book, by Jerry Pallotta; ISBN 0-439-33779-8

Counting Crocodiles, by Jody Sierra and Will Hillenbrand; ISBN 0-15-200192-1

Fish Eyes, by Lois Ehlert; ISBN 0-440-846-47-1

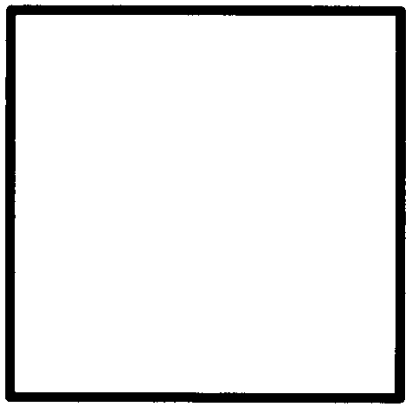
One Less Fish, by Allan Sheather; ISBN 0-613-08482-9

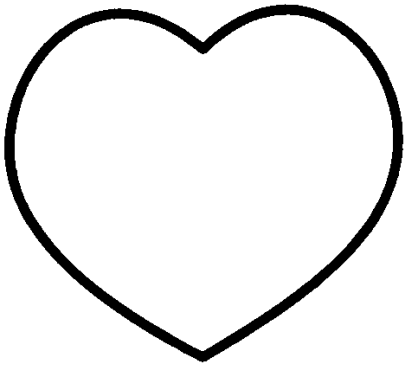
Mathematickles, by Betsy Franco; ISBN 0-689-84357-7

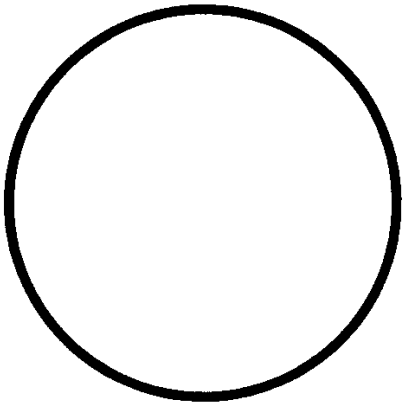
Family Connections

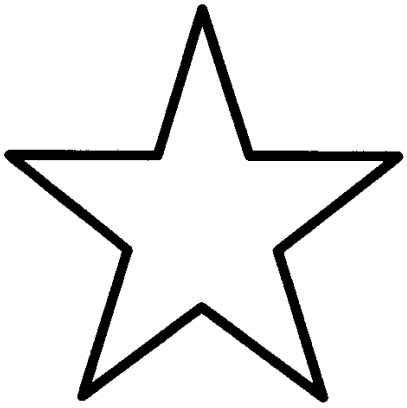
- Encourage the students to either play the game at home and/or share with their parents what they have learned.

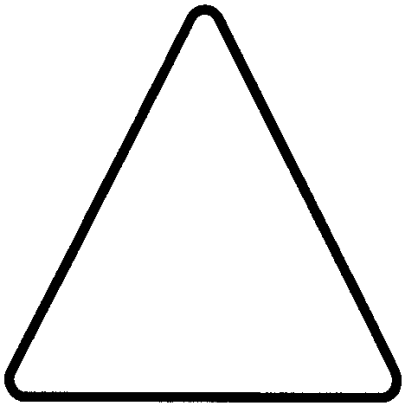
Symbol Cards

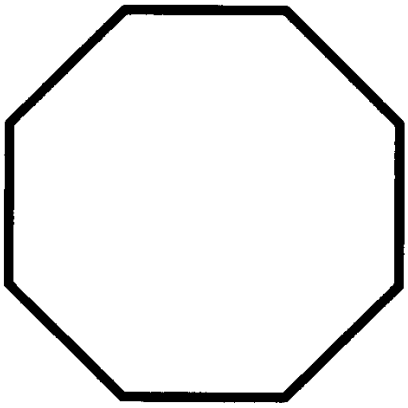


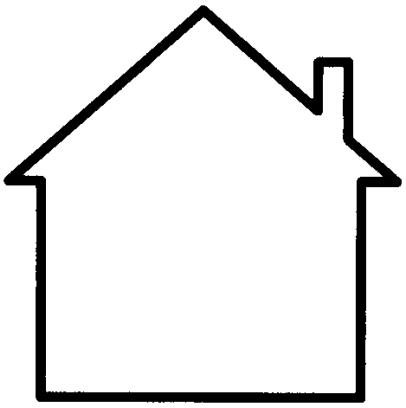


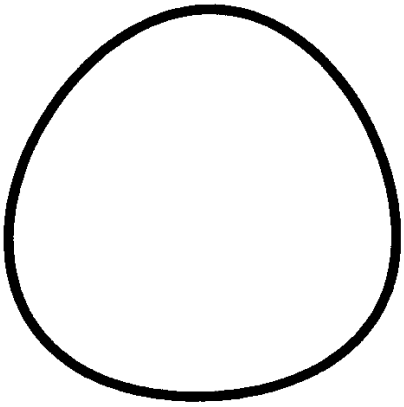










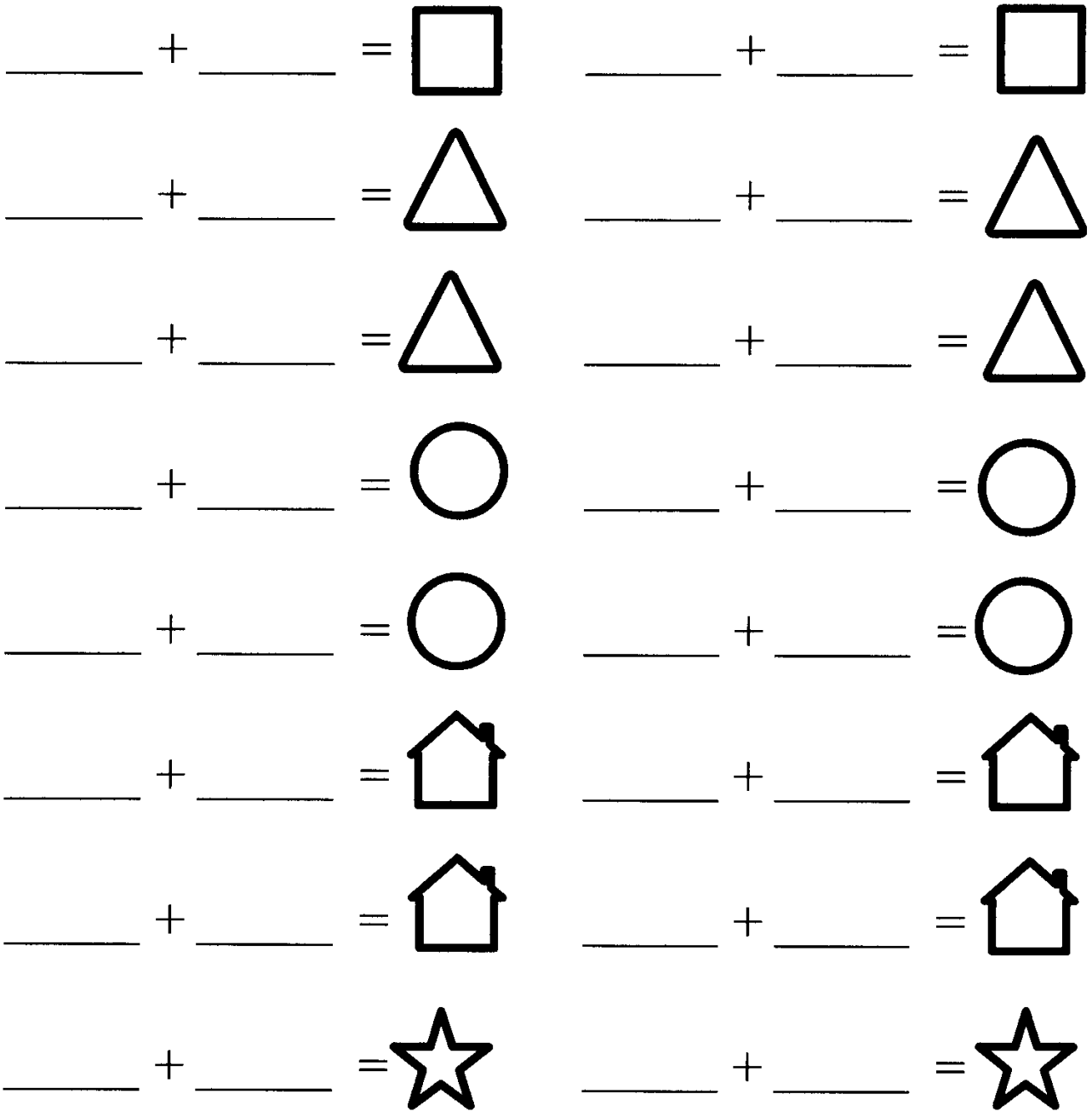


Number Cards

0	1	2
3	4	5
6	7	8
9		

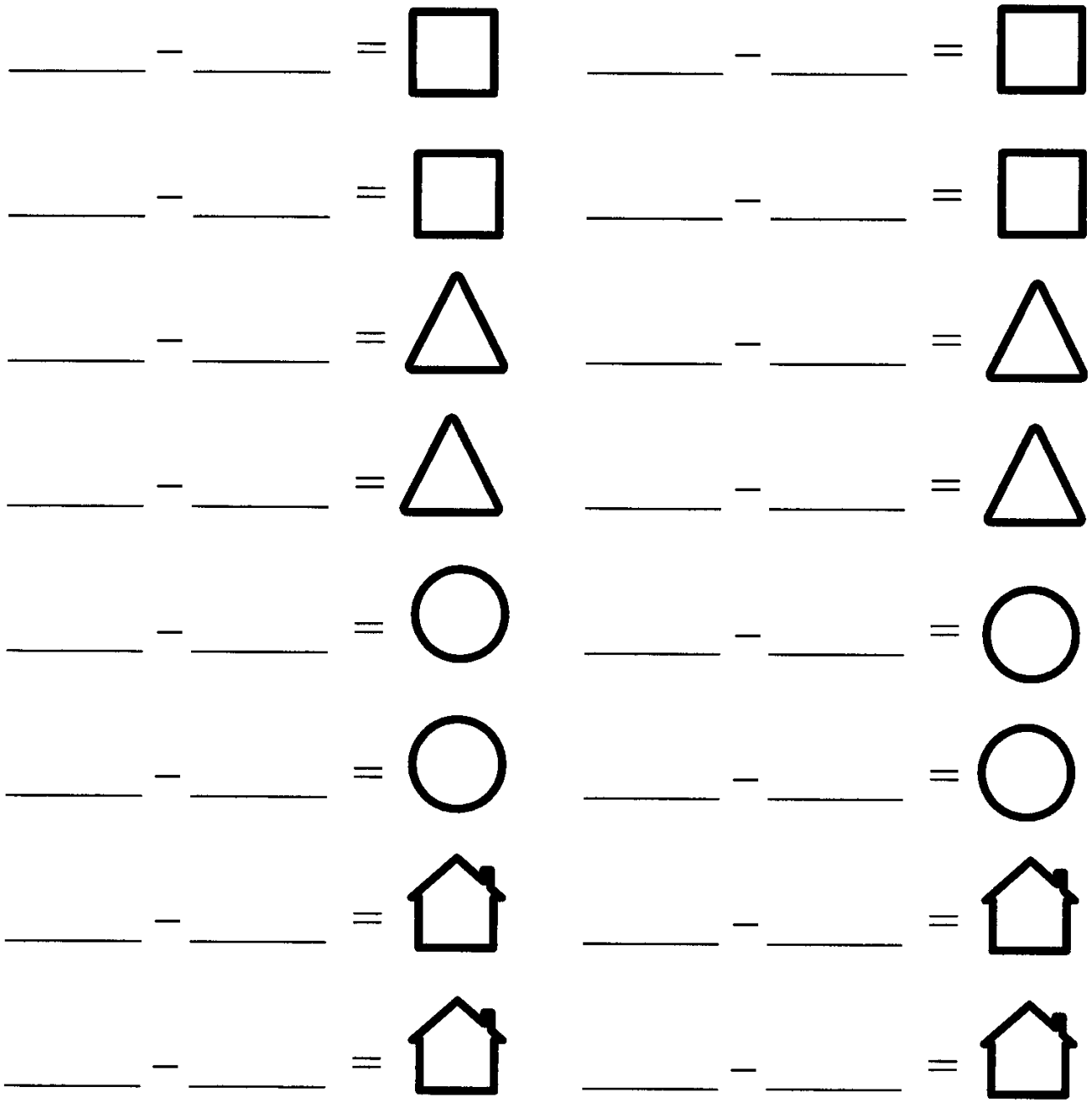
Name _____

Missing Number – Addition



Name _____

Missing Number – Subtraction



Skipping Patterns

Math Standard II

Objective 1

Connections

Math Standard II:
Students will identify and use patterns and relations to represent mathematical situations.

Objective 1:
Recognize and represent patterns with one or two attributes.

Intended Learning Outcomes:
5. Understand and use basic concepts and skills.
6. Communicate clearly in oral, artistic, written and nonverbal form.

Content Connections:
Language Arts VIII-5; Content II-1

Background Information

This lesson focuses on developing students' abilities to replicate, complete, continue, describe and create patterns. They will also learn to represent patterns in a variety of ways.

Invitation to Learn

Teach and sing *Number Raps*.

Instructional Procedures

Materials
- ❑ *Number Raps*
- ❑ *Fox and Chick*
- ❑ Paper strips or chart paper
- ❑ Markers, crayons or pencils
- ❑ *Create-A-Log*

1. Read *Fox and Chick.*
2. Create a number line 1-24 on the chalkboard or chart paper.
3. Reread the story a second time, having a student circle the number stated in the book on the number line. Let students experience the pattern by clapping on the circled numbers and snapping on numbers not circled. Repeat until students can see the pattern.
4. Students will make their own number lines 1-24. They will circle numbers using the same pattern and complete the pattern as far as they can. Observe students who can complete the number line. Provide assistance for those who need help.
5. Students respond to the activity in their *Create-A-Log*.

Possible Extensions/Adaptations/Integration

Students may make up a new story using a different pattern or the pattern created in small groups.

Assessment Suggestions

- Observe individual students or small groups creating their own number line.
- Were students able to replicate pattern from the book on their number line?
- Were the students able to describe the pattern they created?
- Do the students have an understanding of skip counting?
- Can students recite the skipping raps?

Additional Resources

Skip Counting Songs

Books

Fox and Chick, by Cass Hollander; ISBN 0395739942

Beep, Beep, Vroom, Vroom, by Stuart J. Murphy; ISBN 0060280166

Family Connections

- Students take their new pattern story home and read to family.
- Students sing the skip counting songs then teach them to family.
- Have students identify and illustrate patterns found around the house and share them with the class.
- Find a clothing item that shows a pattern and either illustrate pattern or take the item to school to share.

What Shape Am I?

Math Standard III

Objective 1

Connections

Math Standard III:
Students will describe, identify, and create simple geometric shapes and describe spatial relationships.

Objective 1:
Describe, identify, and create simple geometric shapes.

Intended Learning Outcomes:
5. Understand and use basic concepts and skills.
6. Communicate clearly in oral, artistic, written and nonverbal form.

Content Connections:
Language Arts I-1, VI-1, VII-2

Background Information

Students will analyze characteristics of geometric shapes. Students need to know the defining attributes (and other attributes that are consequences of the definitions) of a circle, square, triangle and rectangle prior to this lesson.

Polygon—A closed plane figure made by line segments

Circle—A closed curve with all its points in one plane and the same distance from a fixed point.

Triangle—A polygon with three sides (additional attributes: three angles/corners).

Square—A quadrilateral (four-sided polygon) with four congruent sides and four right angles.

Rectangle—A quadrilateral with two pair of congruent parallel sides and four right angles (additional attributes: two pair of parallel sides, two pair of congruent sides).

Note: A rectangle does not necessarily have two short and two long sides! A square is a special rectangle!

Students need to experience the shapes by touching, seeing, and discussing the number of sides and/or corners of each with peers or the whole class. Students should be given many opportunities to find shapes in their environment. Last, using definitions from class, students find an object in their environment and communicate why it is like the shape of their choice and not like another shape.

Invitation to Learn

I Spy

1. I spy something that is large and has four sides and four corners. This object can be used to write on or hang pictures on. What is it? (chalkboard)
2. I spy something that has no sides and no corners but it does have hands. What is it? (clock)

Instructional Procedures

1. Teach one of the shape songs.
2. Have students choose a shape and identify it by describing its attributes.
3. Individually or with a partner, students will walk around the classroom or school (if appropriate) and compare their given shape to an object in their surrounding.
4. Students will place the shape on top of an object to make sure they match. They can leave it taped to the object if in own classroom.
5. Using the *Same and Different* worksheet (p. 6-19), students will draw a picture of the object chosen to represent their shapes. Next they will write or fill in the blanks as to how it is the same and how it is different from another shape.

Materials

- ❑ Songs and poems
- ❑ Attribute blocks or paper models of shapes
- ❑ *Same and Different* worksheet

Possible Extensions/Adaptations/Integration

Listening Activity: Have children:

1. Color the circle red
2. Color the triangle blue
3. Color the square orange
4. Color the rectangle yellow
5. Name objects that look like these shapes

Critical Thinking Skills: Can you think of an object that has more than one shape?

Shape Riddles: Let your imagination go!

1. I have no corners.

   I have no sides.

   What am I?

2. I have three sides.
   I have three corners.
   What am I?

Assessment Suggestions

- Observe students as they describe their shapes.
- Use student work page.
- Pull small groups aside and hold up a shape and have them name.

Additional Resources

The Shape of Things, by Dayle Ann Dodds; ISBN 0-439-13666-0

Pattern Block City!, by the Editors of Planet Dexter (Scholastic); ISBN 0-590-97223-5

Circus Shapes, by Stuart J. Murphy; ISBN 0064467139

The Greedy Triangle, by Marilyn Burns; ISBN 0590489917

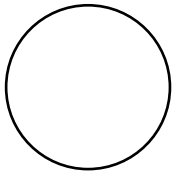
Cat Show, by Jayne Harvey; ISBN 044843112-2

Family Connections

- Students should explain the definition of each shape to a parent or family member. Then challenge that family member to find a shape around the house to compare. Tell why it is alike and why it is different from another shape. The student should be the "teacher" and check to see if their family member is correct.
- Student could draw a picture of the item and write a simple sentence explaining what shape was used (e.g., "The door is like a rectangle. It has four sides and four corners. It is not like a triangle because it has more than three sides and three corners.").

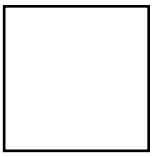
Shape Poems

Cindy Circle



Cindy Circle is my name.
Round and round I play my game.
Start at the top and around the bend.
Up we go, there is no end.

Sammy Square

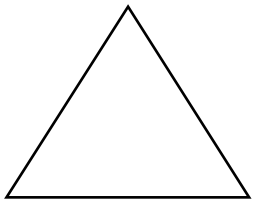


Sammy Square is my name.
My four sides and angles are just the same.
Slide or flip me, I don't care
I'm always the same, I'm a square!

Ricky Rectangle

Ricky Rectangle is my name.
My four angles are the same.
My sides are sometimes short or long.
Hear me sing my happy song.

Trisha Triangle



Trisha Triangle is the name for me.
Tap my sides one, two, three.
Flip me, slide me, you will see...
A kind of triangle I'll always be!

Shape Songs

Shapes

(Sung to *Are You Sleeping?*)

This is a square. This is a square.
Can you tell? Can you tell?
It has four sides, all the same size.
It's a square. It's a square.

This is a circle. This is a circle.
Can you tell? Can you tell?
It goes round and round. No end can be found.
It's a circle. It's a circle.

This is a triangle. This is a triangle.
Can you tell? Can you tell?
It only has three sides that join to make three corners.
It's a triangle. It's a triangle.

This is a rectangle. This is a rectangle.
Can you tell? Can you tell?
My sides are sometimes short or long. I sing a happy song.
It's a rectangle. It's a rectangle.

What Shape is This?

(Sung to *The Muffin Man*)

Do you know what shape this is?
What shape this is? What shape this is?
Do you know what shape this is
I'm holding in my hand?

How many sides does it have?
Does it have? Does it have?
How many sides does it have?
Can you tell me now?

How many corners does it have?
Does it have? Does it have?
How many corners does it have?
Can you tell me now?

Find an object in this room.
In this room. In this room.
Find an object in this room
That is the same.

Can you tell me what it is?
What it is? What it is?
Can you tell me what it is?
Tell me now!

(Can continue singing the song asking other questions)

How is it different from a _____?
From a _____? From a _____?
How is it different from a _____?
Tell me why!

The Square Song

(Sung to *You Are My Sunshine*)

I am a square, a silly square.
I have four sides; they're all the same.
I have four corners, four silly corners.
I am a square, and that's my name.

The Rolling Circle Song

(Sung to *Have You Ever Seen A Lassie*)

Have you ever seen a circle, a circle, a circle?
Have you ever seen a circle, which goes round and round?
It rolls this way and that way, and that way and this way.
Have you ever seen a circle, which goes round and round?

Make A Triangle

(Sung to *Three Blind Mice*)

One, two, three; one, two, three.
Do you see? Do you see?
Up the hill and to the top.
Down the hill—and then you stop.
Straight across; tell me what you've got?
A triangle—a triangle!

Make A Square

(Sung to *Twinkle, Twinkle*)

From the bottom to the top
Straight across and then you stop.
Straight down to the bottom again
Across and stop where you began.
If the lines are the same size
Then a square is your surprise.

Make A Circle

(Sung to *Pop Goes the Weasel*)

Round and round on the paper I go.
What fun to go around like so.
What have I made, do you know?
I made a circle!

Name _____

Same and Different

shape	**shape**
picture	**picture**

The _____ is like a _____.

It is not like a _____because it has _____

_____.

Content Standard III Activities

Ticky Goes to Jr. Map School

Content Standard III:
Students will develop an understanding of their environment.

Objective 3:
Demonstrate how symbols and models are used to represent features of the environment.

Intended Learning Outcomes:
1. Demonstrate a positive learning attitude.
5. Understand and use basic concepts and skills.
6. Communicate clearly in oral, artistic, written, and nonverbal form.

Content Connections:
Math II-1, III-2

Content Standard III

Objective 3

Connections

Background Information

A *compass rose* shows directions on a map. A *key* shows symbols used on a map. A *grid* can help locate features on a map. *Labels* on maps give important information.

Invitation to Learn

Ticky the penguin, who lives in a Utah zoo, gets a postcard from his cousin Tacky, who lives in Antarctica. Tacky invited him to come to see him in Antarctica. Ticky doesn't know where that is, so he asks around and decides to go to Jr. Map School. (This little story is an original story that weaves throughout the three lessons in this section.)

Instructional Procedures

1. Sing *We All Live Together* by Greg and Steve with map visual aids (p. 7-7).
2. Introduce the compass rose with the *Soggy Waffle Dance* (Hat–North, Glove–East, T–shirt tied around hips–South, Glove–West.) Sing *Never Eat Soggy Waffles* (p. 7-8).
3. Participants write N, E, S, W on the borders of paper that will go under a *100s Chart* (p. 7-6). Teacher gives directions starting with the one square. (Move three spaces south, five spaces east, etc. and class recites new number each time in tens and ones.)

Materials

- ❑ Postcard from Antarctica
- ❑ CD of song *We All Live Together*
- ❑ Utah map, world map, globe
- ❑ Props for *Soggy Waffle* song
- ❑ *100s Chart*
- ❑ Bingo chips, paper, markers
- ❑ Word cards: North, East, South, and West
- ❑ Map of school neighborhood

Possible Extensions/Adaptations/Integration

- Use a neighborhood map (with children's pictures taped where their house is) for direction game. (Matt lives east of the school. Who else lives east of the school?) Pictures help ELL and students with special needs.
- Child with N-E-S-W hat, gloves, and T-shirt can lay down on the floor of the classroom to orient North. (Label directions on classroom walls.) Draw a classroom map on the overhead that includes a compass rose.

Physical Education

- Allow several children to try the compass rose outfit to lead the class (his/her back toward the class) in directional movements.

Assessment Suggestions

- Observe during the *100s Chart* activity.
- Observe student interaction and skill with *Places on the Map* (p. 7-9).

Additional Resources

Books

Tacky the Penguin, by Helen Lester; ISBN 0-590-99451-4

Somewhere in the Universe, by David Drew (Harcourt Achieve Big Book, 6-pack); ISBN 076351182X

The Nystrom Block Buddy Atlas, by Charles Nystrom; ISBN 0-7825-0657-7

Web sites

http://www.mapquest.com

Neighborhood Map Machine Grades 1-5, by Tom Snyder (Scholastic); http://www.tomsnyder.com

Additional Media

We All Live Together Vol. 1, #1 song We All Live Together, by Greg and Steve (www.gregandsteve.com); Item YM001C

Marilyn Linford–Your World at a Glance (visuals and CD) marilynmlinford@yahoo.com

Family Connections

- Send home *100s Chart* with directions to play N-E-S-W activity as math homework.
- For math homework, have each student draw a map of his/her bedroom, including a compass rose.
- Send home neighborhood map. Have parents help student draw walking route to school. Draw an alternate route to school from his/her home.

Name _____

100s Chart

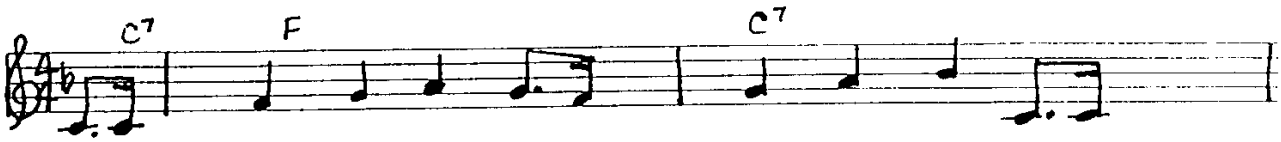
1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Teacher note: Enlarge this chart 140% on 11” x 17” cardstock for use in the lesson.

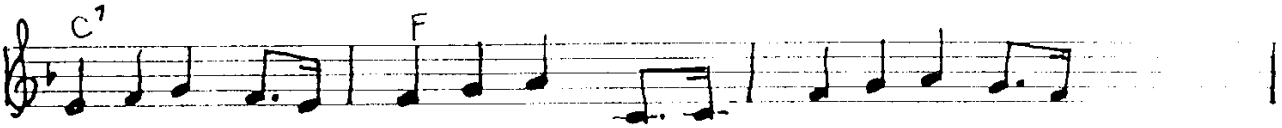
The World
7 Continents
*North America
*Australia
*Antarctica
*South America
*Africa
*Asia
*Europe
* Pacific Ocean
* Atlantic Ocean
N
E
S
W

Penguins in Antarctica

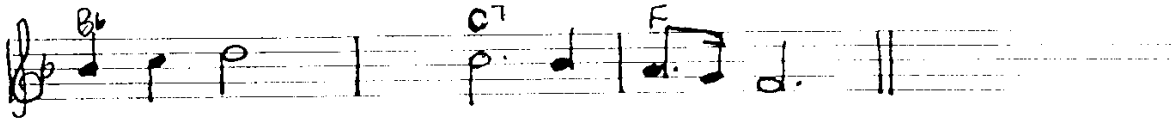
used by permission from Betty Ward, Sandy Ut



Do you know a place where it snows, snows, snows and it's
There are penguin birds who live there, there, there on the
They waddle around when they walk, walk, walk and they
They hold their eggs on their feet, feet, feet so the
Then they take their turns going swish, swish, swish. in the



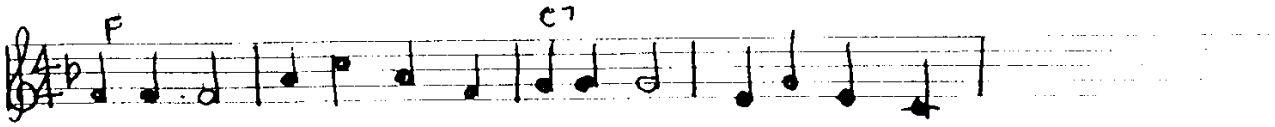
very cold on your toes, toes, toes and a chilly wind nips your
icy rocks that are bare, bare, bare. You could go and see if you
make such noise when they talk, talk,talk, and they build their nests out of
little eggs get some heat, heat, heat, then the chicks will hatch who are
deep blue sea catching fish, fish, fish, and they feed their chicks all they



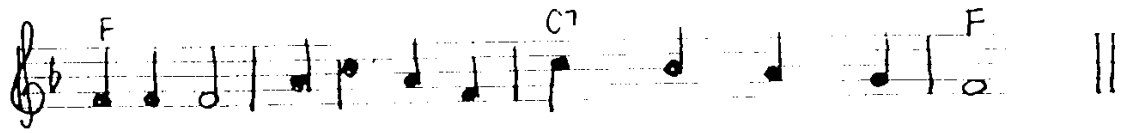
nose; nose, nose? In Ant- arctic- a!
dare, dare, dare, In Ant- arctic- a!
rock, rock, rock, In Ant- arctic- a!
sweet, sweet, sweet, In Ant- arctic- a!
wish, wish, wish, In Ant- arctic- a!

The Soggy Waffle Song

permission by Jacque Garber (tune--10 Little Indians)



Never eat soggy waffles, Never eat soggy waffles,



Never eat soggy waffles. NORTH, EAST SOUTH & WEST!

(pin the words: North on the back of a hat, East & West on gloves, South on a t-shirt to tie around the bottom. Dance while you sing the song. Let kids wear stuff.)

Places on a Map

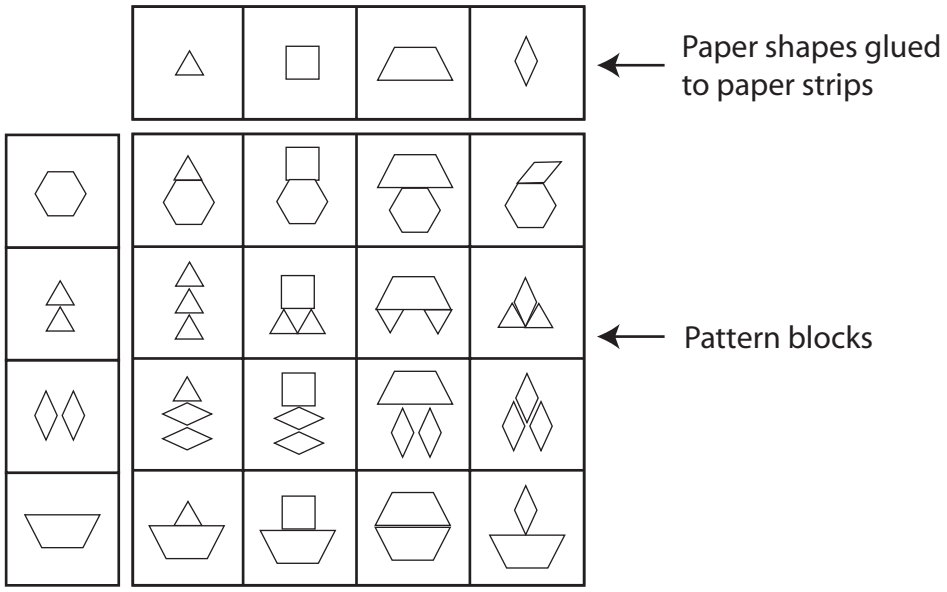
Students need to know how to interpret maps through all the grades, but textbooks seldom have lessons on spatial relationships (calendars, multiplication charts, etc.).

Prepare boards by copying the *Map Grid* (p. 7-10) onto 11" x 17" cardstock (2 3/4" squares). Make two strips, one each for the side and top. Glue punch out paper pattern block shapes, connecting cubes (Unifix cubes), color tiles, tiny bears, beans, etc. in the spaces on the strips (not on the map—leave it blank!). Some strips could have varying amounts in each square. Stamp coins or glue paper coins on some strips. Sticker dots may be placed in the squares, and sticker dot cards made to use on the map. As a whole class activity, you could have a large chart with funny names written in the squares. Have a student tell you the location of Mickey Mouse. This activity is very flexible.

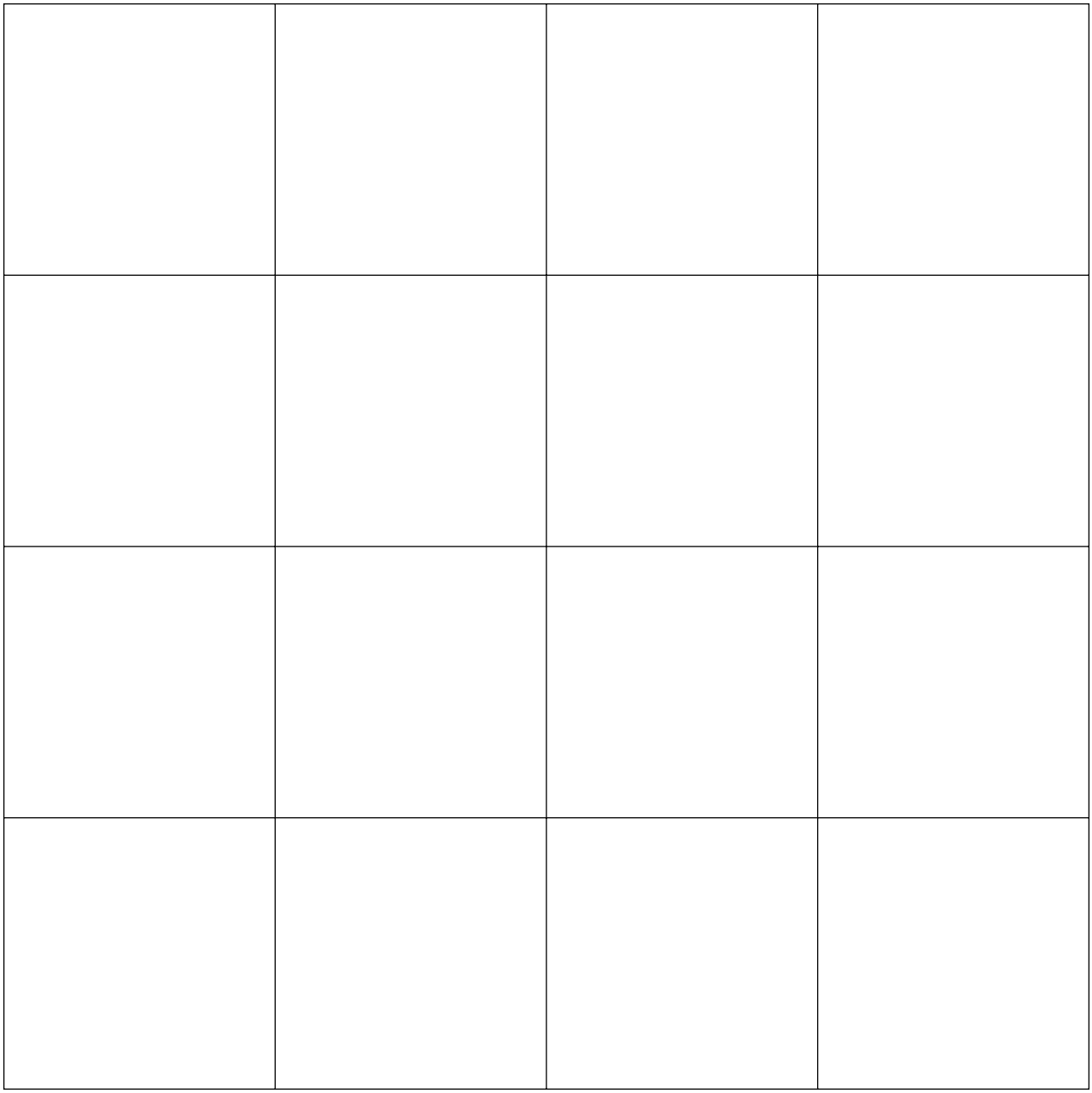
Begin the lesson by discussing columns and rows. Look at a penny and notice the columns on the Lincoln Memorial. Say "Columns are strong. They go up and down. Rows go the other way—side to side." Use an overhead geoboard to demonstrate how the side and top can be used to identify a specific place (letters on the top and the numbers on the side). Build pattern blocks on the overhead according to what the column block or row blocks indicate.

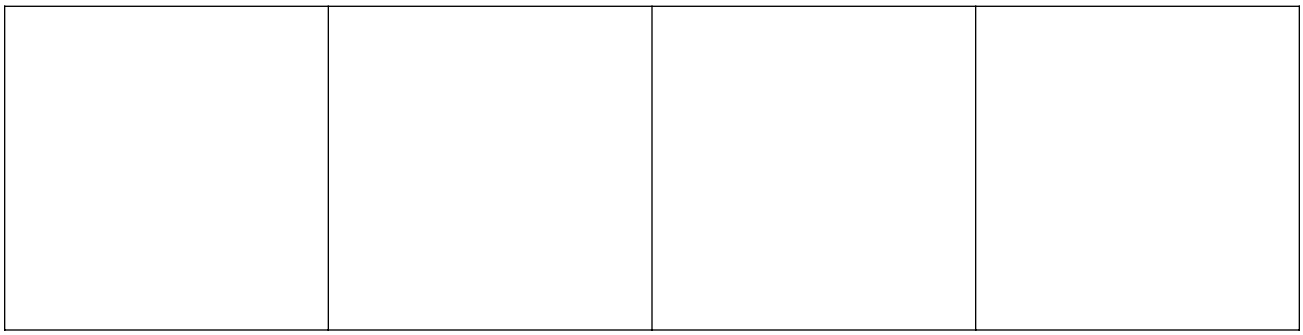
1. Provide each table with a different manipulative to use for building (e.g., pattern blocks, Unifix cubes, color tiles, teddy bear or animal counters, plastic coins, attribute shapes, bingo chips, two-colored beans, etc.). Students work as partners and build the materials onto the map.
2. Place a strip above the map and one on the left side.
3. Some children connect the cubes, some build with the shapes, some lay them flat. They love it!

It will be apparent who knows the maping concept and who does not as you walk around the class. Partners help each other. The activity may be adapted to match the level of the students (e.g., coin combinations).



Map Grid





Make two strips—one for top and one for left side.

Ticky Plans His Trip to Antarctica to See Tacky

Content Standard III:
Students will develop an understanding of the environment.

Objective 3:
Demonstrate how symbols and models are used to represent features of the environment.

Intended Learning Outcomes:
1. Demonstrate a positive learning attitude.
2. Develop social skills and ethical responsibility.
5. Understand and use basic concepts and skills.
6. Communicate clearly in oral, artistic, written, and nonverbal form.

Content Connections:
Language Arts I-1

Content Standard III

Objective 3

Connections

Background Information

A trip to Antarctica from Utah takes map skills and planning. Ticky went to Jr. Map School to get map skills. A globe or map can help him see where Antarctica is located. The process of creative problem solving can help him have a successful trip.

Invitation to Learn

Ticky now knows where Antarctica is located. He wants to get to Antarctica by swimming in the Atlantic Ocean. However, Ticky is in Utah. He has to solve the problem of getting to the Atlantic Ocean. (Continued from *Ticky Goes to Jr. Map School*, p. 7-3.)

Instructional Procedures

1. Students participate in a *Creative Problem Solving Activity* (p. 7-13) to help Ticky get to the Atlantic Ocean.
2. Introduce and explain the creative problem solving process steps using the story of *Ticky the Penguin* and the *Problem Solving Process Cards* (p. 7-14).
   a. Identify the problem.
   b. State the facts that we know.
   c. Brainstorm possible solutions.
   d. Evaluate possible solutions.
   e. Choose the solution to Ticky's problem.

Materials

- ❏ *Creative Problem Solving Activity*
- ❏ *Problem Solving Process Cards*
- ❏ One sheet 18 x 24 chart paper (lined or unlined)
- ❏ Three sheets 12 x 18 white construction paper
- ❏ Continent Outlines
- ❏ A world globe and map

Possible Extensions/Adaptations/Integration

- *Interactive Writing*—Write the steps Ticky takes to get to Antarctica. Cut the sentences apart and make a book with the children illustrating the pictures.
- Use the creative problem solving process to plan a walking/bus field trip.

Assessment Suggestions

- Observe student participation during the creative problem solving process.
- Have the children label North America, Atlantic Ocean, and Antarctica on a map.
- Have the children write or tell about Ticky's trip to Antarctica.

Additional Resources

Books

Creative Problem Solving for an Eency Weency Spider, by Gretchen Duling (D.O.K. publishers, published in 1983—may have to try ebay or half.com); ISBN 0-88047-025-9

OOPS-a Daisy, by Lynn Kock and Monica Lobser (OOPS Creativity Machine, 6875 West David Ave. Littleton, CO 80128, (303) 973-1028)

CPS for Kids, by Bob Eberle and Bob Stanish; ISBN 1882664264

Family Connections

- Plan a family vacation to a favorite place. Where will you go? What will you need? How will you get there? What will you see? How will you tell others about your trip (e.g., pictures, family journal, souvenirs, etc.)?
- Have a family member/relative/friend send a postcard to the school with a child's name on it (in care of the teacher). On a map, find the city, state, or country that is on the postcard.

Creative Problem Solving Activity

Ticky Plans His Trip to Antarctica

Advanced Preparation

Prepare a bulletin board or chalkboard space that may be used for several days. Be sure to put a caption on the board (e.g., the title of this activity or *Creative Problem Solving*). Post the *Problem Solving Process Cards* and charts created during the activity to display the process. Children will refer to them as you proceed through the activity.

Day 1—What is Ticky's problem?

1. Read or tell the story on *Problem Solving Process Card 2*.
2. Have students describe the problem and write it below *Problem Solving Process Card 3*.

Fact Finding: What do we know about Ticky and his problem?

3. Have students tell only the facts about Ticky's problem; they will want to infer or add details. Stick to the facts and write them below *Problem Solving Process Card 4*.

Day 1 or 2

Brainstorming: Think of some ways to help Ticky solve his problem.

4. Write down every suggestion on 18" x 24" chart paper. This activity may take some time. It may be extended for another day or two. You may need more than one sheet of chart paper. Label with *Problem Solving Process Card 5*.

For self esteem reasons, it is best to take a break before continuing with the activity.

Day 3

Evaluation and Analysis: Will it Work? Will it make Ticky happy? Will it... (sometimes children may add another criteria for the group to consider.)

5. Review each idea from the brainstorming session and evaluate as a group. Use facial symbols and words. Place *Problem Solving Process Card 6* beside the chart.

Day 3 or 4

Solution: Use only the ideas that had a "yes" next to them.

6. As a class, vote for the solution to Ticky's problem.
7. Make a decision statement using *Problem Solving Process Card 7* and a piece of paper to finish the statement.
8. Have students write stories or draw pictures about how you solved Ticky's problem.

Problem Solving Process Cards

Ticky the Penguin lives in Utah. He has received a post card from his cousin Tacky in Antarctica. Ticky wants to go see him.

Ticky has discovered where Antarctica is located on the map. Ticky needs to get to the Atlantic Ocean so that he can go to Antarctica.

How will he get from Utah to the Atlantic ocean?

2

Think and Remember...

What is Ticky's problem?

3

Fact Finding....

Who?

what?

where?

4

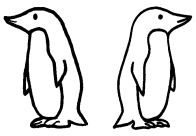
Idea Finding....

Think of 5 or more ways he can solve his problem....

5

Solution Finding....

Will it work?



Will it make Ticky happy?

Will it?....

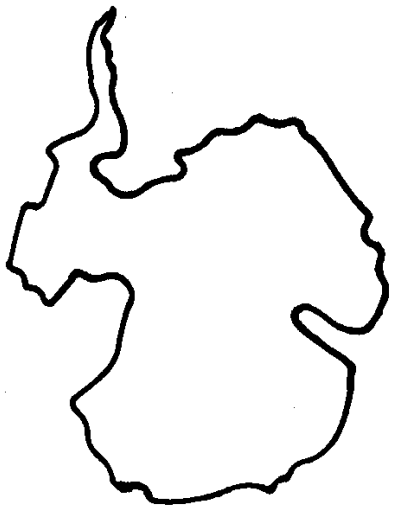
☺😐☹

6

Ticky decided to....

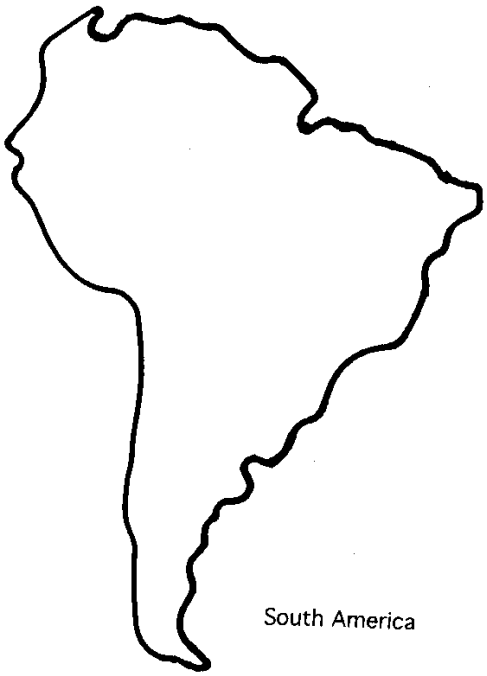
7

Continent Outlines



Antarctica

Australia



South America

North America

Where in the World is Tacky the Penguin?

Content Standard III

Objective 3

Connections

Content Standard III:
Students will develop an understanding of the environment.

Objective 3:
Demonstrate how symbols and models are used to represent features of the environment.

Intended Learning Outcomes:
1. Demonstrate a positive learning attitude.
3. Demonstrate responsible emotional and cognitive behaviors.
6. Communicate clearly in oral, artistic, written, and nonverbal form.

Content Connections:
Language Arts I-1; Math III-1, 2, IV-1, 2, V-1

Background Information

- The world is a roundish shape.
- We can find oceans and continents on a globe or map.
- Penguins do not live only in Antarctica.
- Ticky can measure ways to walk from place to place.

Invitation to Learn

Ticky has made it to Antarctica only to discover that Tacky has left! Ticky meets other types of penguins. They walk with him and show him how to find Mac. Mac is Tacky's good friend. He tells Ticky that Tacky has gone to Australia to see his friend Tiny. Ticky gets to Australia and Tiny tells him that Tacky went to Utah to visit him! Ticky returns to Utah by way of the Pacific Ocean. He tells Tacky about his trip and the penguins he met. (Continued from *Ticky Plans His Trip to Antarctica to See Tacky*, p. 7-11.)

Materials

- ❑ *Ticky the Adelie Penguin Directed Art Activity*
- ❑ *Penguin Feet Measurement Pattern*
- ❑ *Friendly Charts: World Map*
- ❑ *Sing to Learn with Dr. Jean* CD
- ❑ *Penguin Graph Sheet*
- ❑ *Penguin Graph Cards*

Instructional Procedures

1. Sing *Penguins in Antarctica* (p. 7-8).
2. Participants will make Ticky with the *Ticky the Adelie Penguin Directed Art Activity* (p. 7-19) using rectangles and squares.
3. A mini interactive writing lesson labeling Ticky will be demonstrated.
4. Students are put into groups and given a *Penguin Feet Measuring Pattern* (p. 7-20) to measure across the room. Have students make a penguin foot measurement stick on a tongue depressor.

5. Sing *Continents* with a continent map. (See *Resources—Friendly Charts: World Map* and *Sing to Learn with Dr. Jean* CD.)
6. Track Ticky's route on world maps. Label the continents and oceans.
7. Have students complete the *Penguin Graph Sheet* (p. 7-22) and make *Penguin Graph Cards* (p. 7-23) [see *Penguin Graph Sheet Directions,* p. 7-21].

Possible Extensions/Adaptations/Integration

- Self esteem/character education lessons with the *Tacky the Penguin* series.
- *Interactive Writing*—Label different types of penguins and place them on the continent where they live.
- Where in the world is Ticky the Penguin? Using a map or globe, provide clues for students to guess the place where Ticky is.

Assessment Suggestions

- Observe student participation during the art lesson. Display the finished product.
- Have children measure items in the room with different penguin feet, then write/illustrate in math journals about what they did.
- Use the favorite penguin graph to do oral story problems.

  Example: Which penguin type has one less than nine? After the teacher models the questions, the children ask the questions. This activity can go on for four or five days, allowing all children have an opportunity to participate.

Additional Resources

Books

Tacky the Penguin Series, by Helen Lester (Scholastic); ISBN 0-590-99451-4

Eyes on Nature: Penguins, by Jane P. Resnick (Innisbrook Wraps); ISBN 1561564702

Zoobooks: Penguins, by John Bonnet Wexo (Wildlife Education, Ltd.); ISBN 0937934178

Web sites

http://www.google.com; Search for penguins will yield many sights.

http://www.sieck12i.us/~west/proj/pengins/antarc.htm/

Additional media

Friendly Charts: World Map (Scholastic, www.teachersfriend.com); ISBN 0-439-50546-1

Sing to Learn with Dr. Jean (http://www.drjean.org); ISBN 0-28021-00042-7

Family Connections

- Visit a Web site chosen and checked by the teacher. Print a page and bring it to school to share.
- Send home *Ticky the Penguin* (p. A-37) for the family to dress. Have them choose a place for Ticky to visit and write it on the back. At school, pick two or three "Ticky Penguins" and locate where they went to visit on a globe or map.

Ticky the Adelie Penguin Directed Art Activity

The beak is orange for artistic design – Adelie beaks are black.

Construction Paper

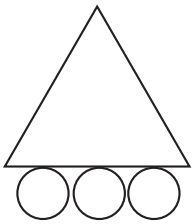
# of Sheets	Size	Color	Reason
2	9 x 12	black	body and wings
1	7 x 10	white	tummy
1	6 x 6	black	head
1	6 x 9	orange	feet
1	3 x 4	orange	beak
1	2 x 3	white	eyes

A black scrap for the "pupils" of the eye.

Materials

- ❑ Black, white, and orange construction paper
- ❑ Scissors
- ❑ Glue

Short Directions



body — Make a pear shape touching all sides of the paper.

wings — Fold on one side; make a half heart or the top of a 2.

tummy — Cut oval shape as desired.

head — Make a circle touching each side.

feet — Fold in half; on one side make a big triangle and 3 circles.

eyes — Fold in half; on one side make a big oval. Glue so they touch.

pupils — Make black circles from scraps; teach directionality.

beak — Make a letter V; touch top and bottom; fold to stick out; trim.

Penguin Feet Measurement Activity

Quick Notes

Big Foot—two for each group of children to measure—heavy orange paper

Medium Foot—two for each group of children to measure—heavy orange paper

Tiny Foot—glue on tongue depressor—eight/touching—light orange paper; one to five sticks for each group of children to measure.

Materials

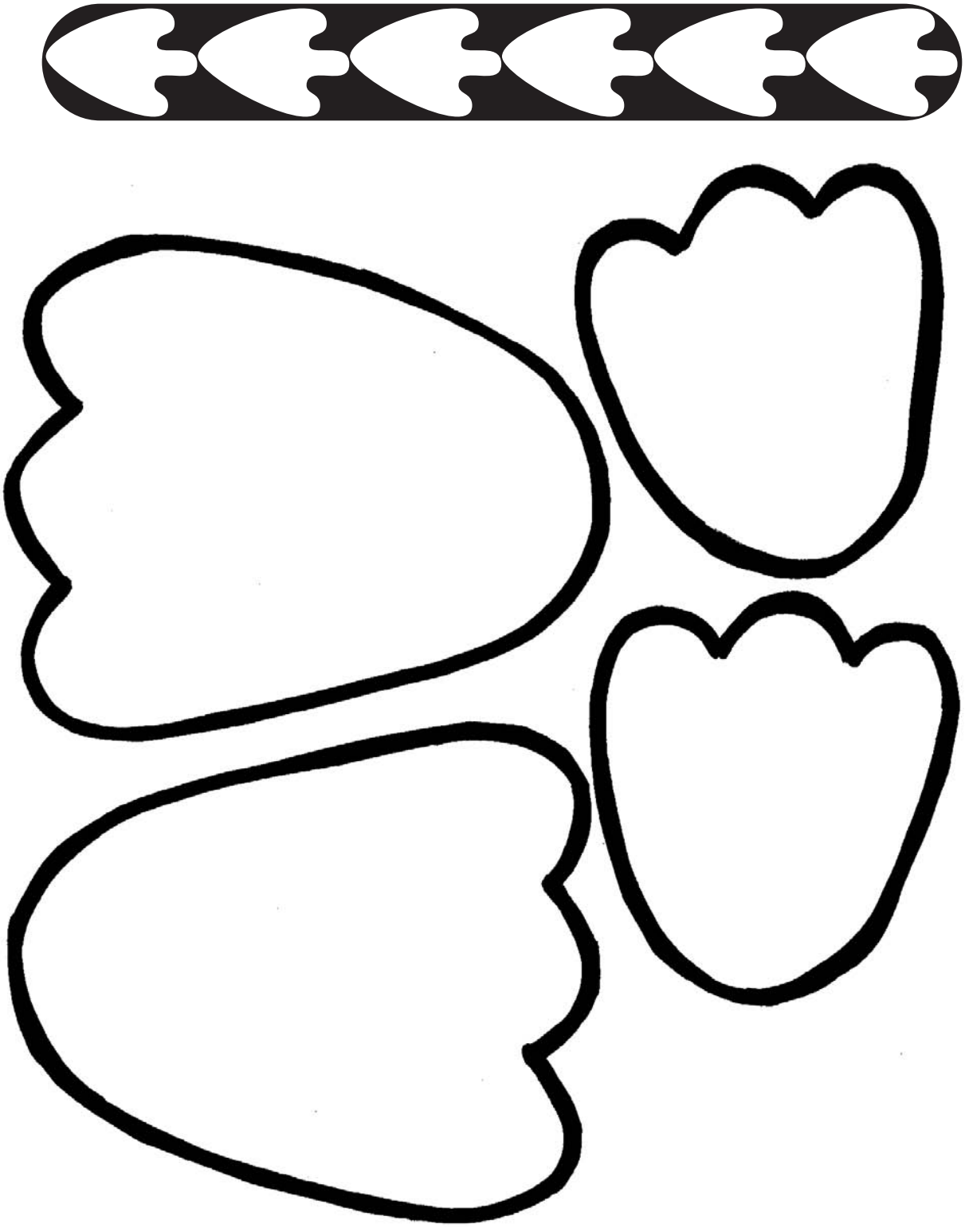
- ❑ Black, white, and orange construction paper
- ❑ Scissors
- ❑ Glue
- ❑ Tongue depressor

Activities

1. Measure the same item with different sized feet.
2. Measure the same distance with different sized feet.
3. Record on a sheet of paper or math journal your findings.

This activity works well with older-younger buddies, the younger child has the measuring tool.

Penguin Feet Measurement Patterns



Ticky's Graphing Lesson

Instructional Procedures

Advance Preparation

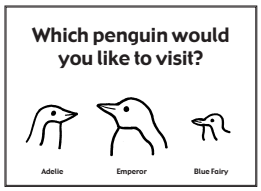
- Create a wall graph using chart paper, poster board, or oak tag.
- Prepare a copy of the *Graph Title* (p. 7-22).
- Prepare copies of *Children's Choices* (p. 7-23).
- Prepare a copy of each *Graph Labels* (p. 7-24).

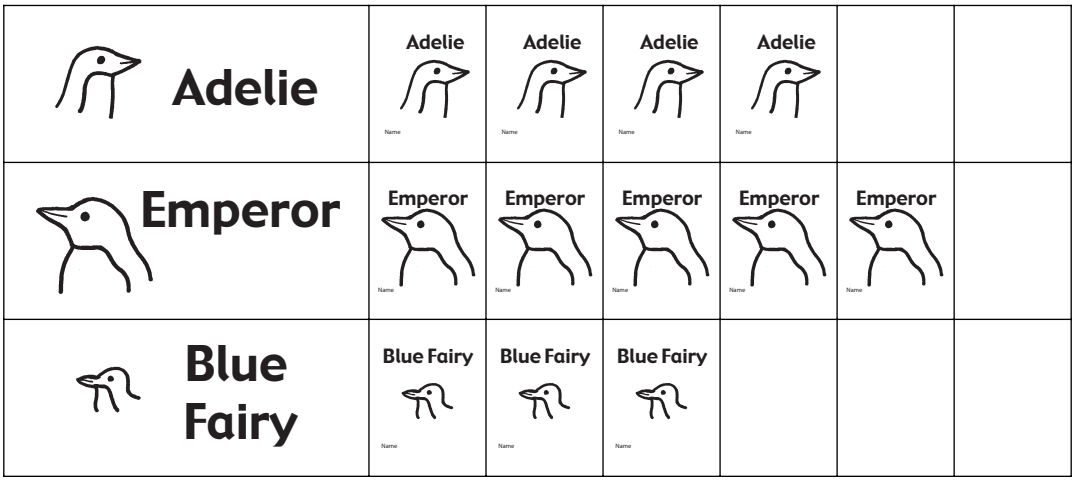
Activity

1. Post the wall graph with the *Graph Title* and *Graph Labels.*
2. Place the *Children's Choices* cards in three piles for the children to choose from.
3. Each child selects one *Children's Choice* card and returns to his/her desk to color the picture and write his/her name on the selected card.
4. Tape the completed *Children's Choice* cards on the graph in the appropriate places.
5. Discuss the data collected during this activity.

Materials

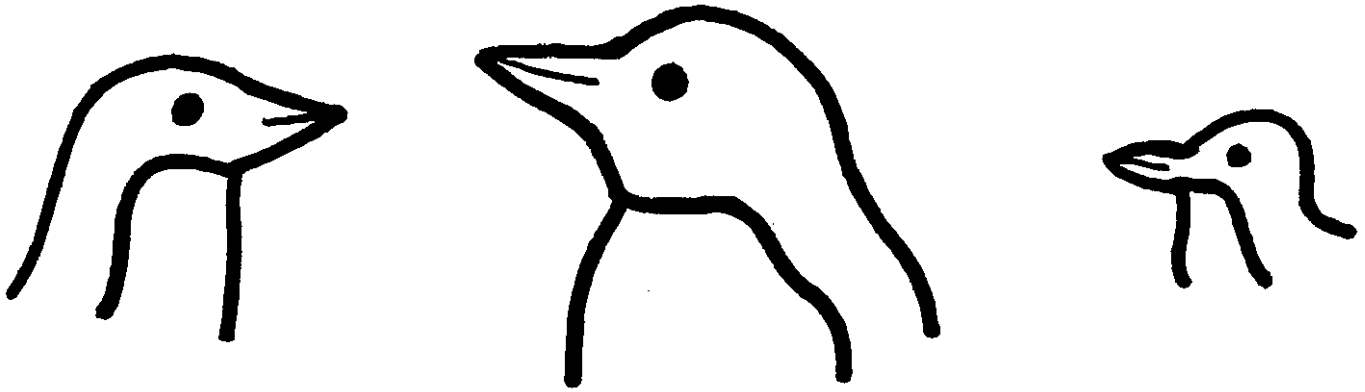
- ❑ Wall graph
- ❑ *Graph Title*
- ❑ *Children's Choices*
- ❑ *Graph Labels*





Graph Title

Which penguin would you like to visit?



Adelie | Emperor | Blue Fairy

Graph: Children's Choices

Adelie

Name

Adelie

Name

Emperor

Name

Emperor

Name

Blue Fairy

Name

Blue Fairy

Name

Graph Labels

Adelie

Emperor

Blue Fairy

Math Standard IV Activities

Let's Find Out About Money

Math Standard IV:
Students will understand and use simple measurement tools and techniques.

Objective 1:
Identify measurable attributes of objects and units of measurement.

Intended Learning Outcomes:
5. Understand and use basic concepts and skills.
6. Communicate clearly in oral, artistic, written, and nonverbal form.

Content Connections:
Language Arts VIII-1, 6; Core I-3; Math V-1, 2

Math Standard IV

Objective 1

Connections

Background Information

This activity is designed to teach the attributes of each coin (penny, nickel, dime and quarter), including physical characteristics and value. Knowing the attributes of each coin aids in the identification of the coins by name and value. It is recommended that one of the assessments be given as a pretest before teaching. Identify students who need accommodations and extensions. You may choose to read Kathy Barabas' *Let's Find Out About Money* prior to teaching this lesson, or include it as part of your *Invitation to Learn*.

Invitation to Learn

Pass out a penny to each child. Give them a few minutes to examine the coin and then record their observations of physical characteristics on chart paper at the front of the room. This chart paper becomes your word bank for the students to refer back to throughout the unit on money.

Instructional Procedures

1. Teach about the various attributes of the penny. As a check for understanding, have students tell attributes back to you as you add them to the word bank.
2. Teach the *Penny Poem* (p. 8-7).
3. Interactively write what the class has learned about the penny, referring back to the notes taken on the chart paper and the large visual of the penny.
4. Teach the *Pocket Song* (p. 8-7), using the penny to fill in the blanks.
5. Repeat steps 1-4 with the nickel, dime and quarter.

Materials

- ❑ *Let's Find Out About Money*
- ❑ Chart paper for word banks
- ❑ Chart paper for interactive writing
- ❑ *Coin Poems*
- ❑ *Pocket Song*
- ❑ *Palm Pocket Cards*
- ❑ *Palm Pockets*
- ❑ *Tally Them Up!* sorksheet
- ❑ Coin cubes (heads/tails)
- ❑ Enlarged visuals of coins
- ❑ Real/plastic coins for each student

6. Give each child a *Palm Pocket* (p. 8-9) and a set of *Palm Pocket Cards* (p. 8-8). Give clues about a penny, nickel, dime or quarter. Have students figure out which coin/amount was described and show by placing the appropriate card in the *Palm Pocket*.
7. Introduce the coin cubes. In cooperative groups or at centers, the students play the identification game with the coin cubes. Keep a tally of how many times each coin is rolled using the *Tally Them Up!* worksheet (p. 8-10).

Possible Extensions/Adaptations/Integration

- Invite students to independently write about the coins, using word banks created on chart paper.
- To help students memorize the coin poems, take them outside and let them chant the rhymes while jumping rope.
- Provide students the opportunity to transfer the data they collected on their tally page to a bar graph.
- Integrate this unit with the integrated standard and objective on water. Use the coins in a sink/float prediction activity.
- As a fast finisher or a center, provide a concentration game to help students practice matching skills.
    1. Match coin heads with tails.
    2. Match value with coin.
    3. Match written name with coin.
- Create a Venn Diagram and as a class or in small groups. Encourage students to compare/contrast two different coins (e.g. the penny and the dime or the nickel and the quarter). Refer students to the word banks created for each coin as they fill in the Venn Diagram.
- As an adaptation, put stickers/pictures up next to the words recorded onto the word banks to scaffold for emergent/second language learners.
- Have students create their own "Pocket Books" with a page for each coin, including the *Pocket Song*, the coin poems, and stickers/rubbings of each coin. This would be a great portfolio piece.
- You may choose to teach this unit in February (President's Day holiday) and share nonfiction books about the four presidents depicted on the coins.

- Create a file folder game with pockets. Students put correct coin card in corresponding pocket, labeled with value in cents.
- For students who already know the attributes and values of the penny/nickel/dime/quarter, teach steps 1-7 on the half dollar and dollar bill.

Assessment Suggestions

- Have students write about each coin, including value, characteristics, etc., using the word banks displayed in the room. Allow students to do rubbings of the coins around the edge of the paper. This makes a nice portfolio piece.
- Use *Palm Pockets* and questions to assess small groups on their knowledge of coin characteristics and value.
- Have students match coin names with symbols on a worksheet or with cards.

Additional Resources

Books

Benny's Pennies, by Pat Brisson; ISBN 0-440-41016-9

There's a Hole in My Pocket, by Akimi Gibson; ISBN 0-590-27598

15 Fun-To-Sing Math Learning Songs and Activities, by Mitzi Fehl and Bobbie Williams; ISBN 0-439-18724-9

The Coin Counting Book, by Rozanne Lanczak Williams; ISBN 0-88106-325-8

Money a Rich History, by Jon Anderson; ISBN 0-448-43205-6

Web sites

http://www.teachers.net Lessons

http://www.enchantedlearning.com math/money/coins

http://www.ilovethatteachingidea.com

http://www.aplusmath.com

Family Connections

- As you teach each coin, send home a coin with each child along with a note for the parents to sign, indicating that his/her child has told him/her about the value and characteristics of the coin. If you don't want to send the actual coin, simply send a picture of it or a stamp/sticker on the home note.
- Send a note home to parents, asking them to take out their "pocket change" for their child to identify by name and value each night for a week.
- Assign students the task of sharing the coin poems with their families and ask for a report back.
- Send home a concentration game that the family can make and play together to practice identifying the coins.

The Pocket Song

(Sing to the tune of "Shortnin' Bread")

Which coin is in my pocket, pocket?

What's in my pocket worth _____ cent(s)?

It's a shiny _____, _____.

It's a _____, worth _____ cent(s)!

**Put the song up on chart paper and practice with it many times throughout the unit.

Coin Poems

Posted by Addie Gaines on Teachers.Net Lesson Exchange

Penny
Penny, penny,
Easily spent
Copper brown
And worth one cent.

Dime
Dime, dime,
Little and thin,
I remember
You're worth ten.

Nickel
Nickel, nickel,
Thick and fat,
You're worth five cents.
I know that.

Quarter
Quarter, quarter
Big and bold,
You're worth twenty-five
I am told!

Palm Pocket Cards

1	2	3	4
5	6	7	8
9	0	¢	
penny 	nickel 	dime 	quarter 

Palm Pockets

penny
nickel
dime
quarter

Name_____

Tally Them Up!

Which coin is which? Roll your money cube 25 times. Put a tally mark in the correct box to show which coin you roll each time. Then, count up your tally marks.

Coin	Tally Marks	Total
penny		
nickel		
dime		
quarter		

Which coin did you roll the most? _____

Which coin did you roll the least? _____

Which coin are you more likely to roll? _____

Which coin are you less likely to roll? _____

Are you equally likely to roll any coins? = _____

Name _____

A Penny For Your Thoughts...

Coin Information

Penny

- A U.S. coin worth one cent; can be written 1¢ or $0.01
- Named after the British penny
- Copper plated; smooth edge
- First penny was printed in 1787; designed by Benjamin Franklin; it had an "Indian Head"
- Lincoln penny first issued in 1909, the 100th anniversary of Lincoln's birth; this was the first coin to picture a President

  Front of Penny

  - Abraham Lincoln—16th President of the United States
  - "In God We Trust"; "Liberty"
  - Year coin was minted
  - Mint mark (D means Denver, S means San Francisco and P means Philadelphia)

  Back of Penny

  - Lincoln Memorial, located in Washington D.C.; If you look closely you can see a tiny picture of Lincoln sitting inside the Lincoln Memorial.
  - "United States of America"; "One Cent";
  - "E Pluribus Unum"="Out of many, one"

Nickel

- U.S. coin worth five cents/five pennies; can be written 5¢ or $0.05
- Made out of a mixture of nickel and copper; smooth edge
- Was an "Indian Head/Buffalo" nickel until 1938 when it became the Jefferson nickel

  Front of Nickel

  - Thomas Jefferson—3rd President of the United States and principal author of the Declaration of Independence
  - "In God We Trust"; "Liberty"
  - Year coin was minted
  - Mint mark

  Back of Nickel

  - Monticello—Jefferson's house, which was designed by Jefferson himself
  - "E Pluribus Unum"; "Monticello"; "Five Cents"; "United States of America"

Dime

- U.S. coin worth ten cents/ten pennies/two nickels; can be written 10¢ or $0.10
- Before 1965, was made out of silver; now made out of nickel/copper mixture; 188 ridges around the edge; smallest, thinnest and lightest U.S. coin
- Used to be the "Liberty Head "dime until 1946; now, the Roosevelt dime

  Front of Dime

  - Franklin Delano Roosevelt—32nd President; the only four-term President of the United States
  - "Liberty"; "In God We Trust"
  - Year coin was minted
  - Mint mark

  Back of Dime

  - Torch with an olive branch to the left and an oak branch to the right
  - Torch signifies liberty
  - Oak branch signifies strength and independence
  - Olive branch signifies peace
  - "United States of America"; "E Pluribus Unum"; "One dime"

Quarter

- U.S. coin worth twenty-five cents/twenty-five pennies/five nickels/two dimes and one nickel; can be written 25¢ or $0.25
- Made out of copper and nickel; before 1965 it was also made out of silver; edge has 119 ridges
- George Washington quarter replace the Liberty quarter in 1932
- There will be 50 state quarters, honoring each state's history, traditions and symbols

  Front of Quarter

  - George Washington—First President of the United States
  - "Liberty"; "In God We Trust";
  - Year coin was minted
  - Mint mark

  Back of Quarter

  - Presidential coat of arms (an eagle with outstretched wings)
  - "United States of America"; "E Pluribus Unum"; "Quarter Dollar"

Name_____

Identify These Coins

Directions: Each coin is labeled with a letter. Look at each problem. Which coin matches? Write the correct letter next to each problem.

a

b

c

d

1. penny ___
2. nickel ___
3. dime ___
4. quarter ___
5. 25¢ ___
6. 10¢ ___
7. 5¢ ___
8. 1¢ ___

Coin Counting

Math Standard IV:
Students will understand and use simple measurement tools and techniques.

Objective 2:
Use appropriate techniques and tools to determine measurements.

Intended Learning Outcomes:
5. Understand and use basic concepts and skills.
6. Communicate clearly in oral, artistic, written, and nonverbal form.

Content Connections:
Math II-1, I-3; Language Arts VII-3

Math Standard IV

Objective 2

Connections

Background Information

Before presenting this activity, it is recommended that counting by fives and tens be taught. Already having mastery of these skills will contribute to your students' success with this activity. Step four of this activity may be done as a whole class activity or as small group centers.

Invitation to Learn

Read *The Coin Counting Book*.

Instructional Procedures

1. Prepare the chalkboard or a poster that has problems written in large bold print, duplicating the problems on *Counting Coins* (p. 8-19).
2. Point out that in the book, we read about how to count and add coins. We also saw many pennies traded for fewer coins that were worth more. For example, 25 pennies were traded for one quarter. Explain that for the next activity, the students will practice their money counting skills.
3. Hold up a bag/bank/pocket with coins in it. Invite one student to the front of the room. Have him/her pull a coin from the pocket. Ask students to name the coin and tell you its value. Fill in the first two blanks on the chalkboard with the correct value. Ask students for an idea of how to figure out the value of two of that same coin. Students may offer strategies such as counting on, using tools, drawing a picture, using their fingers, and using their memory of the addition fact. Accept all strategies. Repeat this step.

Materials

- ❑ Coin cubes (heads/tails)
- ❑ *Counting Coins* worksheet for each student
- ❑ *The Coin Counting Book*
- ❑ Coin manipulatives for each student (real, plastic, or paper coins)
- ❑ Prepared chalkboard/ poster
- ❑ Pocket/bag/bank
- ❑ Large coin visuals
- ❑ Overhead coins/ magnetic money

4. Invite another student to roll a coin cube and hold up a large visual depicting the coin rolled. Ask students to identify the name of the coin and the value. Fill in the blanks on the chalkboard as you guide the class to tell you what to write. Repeat this step.
5. Pass out the *Counting Coins* worksheet (p. 8-19) to each student and a coin cube to each pair/group of students. Explain that they will be tossing the cube once for each problem on the page. After the first roll, they should record the value of the coin rolled in the first and second spaces, then add the values to reach a sum. Encourage students to use coins or other manipulatives if they need to in order to add the amounts correctly.
6. When students finish their *Counting Coins* worksheet, invite them to share their sums with the class. As they share, ask them if they could make the same sum with (a) different coin(s). Help them model with magnetic money/money visuals/overhead money; let the rest of the class use coins to practice.

Possible Extensions/Adaptations/Integration

- Reread *The Coin Counting Book*. Pass out coin manipulatives to each student (Each student needs at least 25 pennies, five nickels, two dimes, and one quarter). Read the book aloud and have the students model the instructions in the book with their coins. Invite them to count out loud and point at the coins as they do so. They will be adding pennies and trading them for larger coins. Read only up to the 15th page. The final pages of the book deal with counting collections to make 50¢ and a dollar. (This extension is perfect for advanced students to continue their learning.)
- Create a concentration/memory game that requires the students to match collections of coins with their sums.
- Add a "pocket" to your calendar discussion every day. Have a pocket with similar coins that the students retrieve and count to make sums up to 25¢.
- Provide coin stamps/stickers to students in a center. Invite them to create collections of their own and write the total value in a math sentence. Using the *Pocket Pattern for Collections Book* (p. 8-21), combine all of the pages created by the students and bind them to make a class book.
- Play a counting coins game. Put a bowl of coins in the middle of each table/group. Provide each group with a number cube. Students take turns rolling the cube. Each time the cube is rolled,

every member of the group adds that many pennies to their personal pile. When they have enough to trade for a larger coin, they do so (e.g., five pennies are traded for one nickel; two nickels are traded for one dime). This is one activity you can assess by walking around and observing students as they play. Try giving them a time limit. When time is up, have each group tell what sum they made with which coins. You could even play this like musical chairs. When the music stops, they share their sums.

- Use a variation for the *Pocket Song*. Instead of singing about one coin, students take a given value and decide how many coins would be in the pocket to make a certain amount of cents.
- Use the *Variation on the Pocket Song* (p. 8-20) to make a class book. Collaborative groups find all of the different ways to make a given value. Record them in the song and illustrate with stamps/stickers/student drawings.
- Make your own practice pages using http://www.aplusmath.com.
- Play a game with the *Palm Pockets*. Supply students with *Palm Pockets*, *Palm Pocket Cards,* and manipulatives. List two coins and ask them to figure out the total, placing the correct cards in the pocket. Then, give them the signal to show.
- Differentiate for advanced learners by inviting them to make collections totaling up to one dollar or more.
- Set up a classroom store. Place price tags on various objects and have students calculate how much money they will need to buy certain objects. You might choose to have the objects be school supplies/rewards that they can buy, and pass out paper coins as an incentive program.
- Write about the collections you count as a class for interactive writing.
- Encourage the students to write their own stories about adding money. Provide them with stamps/stickers to help them illustrate their published work.

Assessment Suggestions

- Meet with students one on one or in small groups. Give them coins of the same type totaling 25¢ or less and ask them to add them. This type of assessment allows you to actually see their strategies and comfort/confidence level as they count the coins.

- Provide an assessment that shows coin addition sentences and asks students to count the collection and write the sum (*Count These Coins*, p. 8-22).
- Invite students to write to you about the different collections they know how to make up to 25¢ using like coins.

Additional Resources

Books

A Dollar for Penny, by Dr. Julie Glass; ISBN 0-439-32296-0

Pigs Will Be Pigs, by Amy Axelrod; ISBN 0-590-13213-X

Once Upon a Dime A Math Adventure, by Nancy Kelly Allen; ISBN 1-57091-161-4

The Coin Counting Book, by Rozanne Lanczak Willliams; ISBN 0-88106-325-8

Web sites

http://www.aplusmath.com

http://www.teachers.net

http://www.ilovethatteachingidea.com

Family Connections

- Write a note home to parents asking them to take out their "pocket change" each evening for a week and invite their child to count the coins all together or in collections. You may leave this up to the parents or advise the parents, based on their child's understanding and mastery of counting coins.
- Send the class book of coin collections home with each child, over the space of a month, to let the students share their work and knowledge with their families.
- Send home a page/activity/assignment that aligns with your assessment choice. Ask parents to practice with their child as a final practice before the assessment.

Name_____

Counting Coins

Directions: For each number, roll the coin cube. Record the value of the rolled coin in the first and second blank. Then, add to find the sum. How many cents do you have in all? Write the sum in the blank.

1._____¢ + _____¢ = _____¢
1st roll value 1st roll value sum

2._____¢ + _____¢ = _____¢
1st roll value 1st roll value sum

3._____¢ + _____¢ = _____¢
1st roll value 1st roll value sum

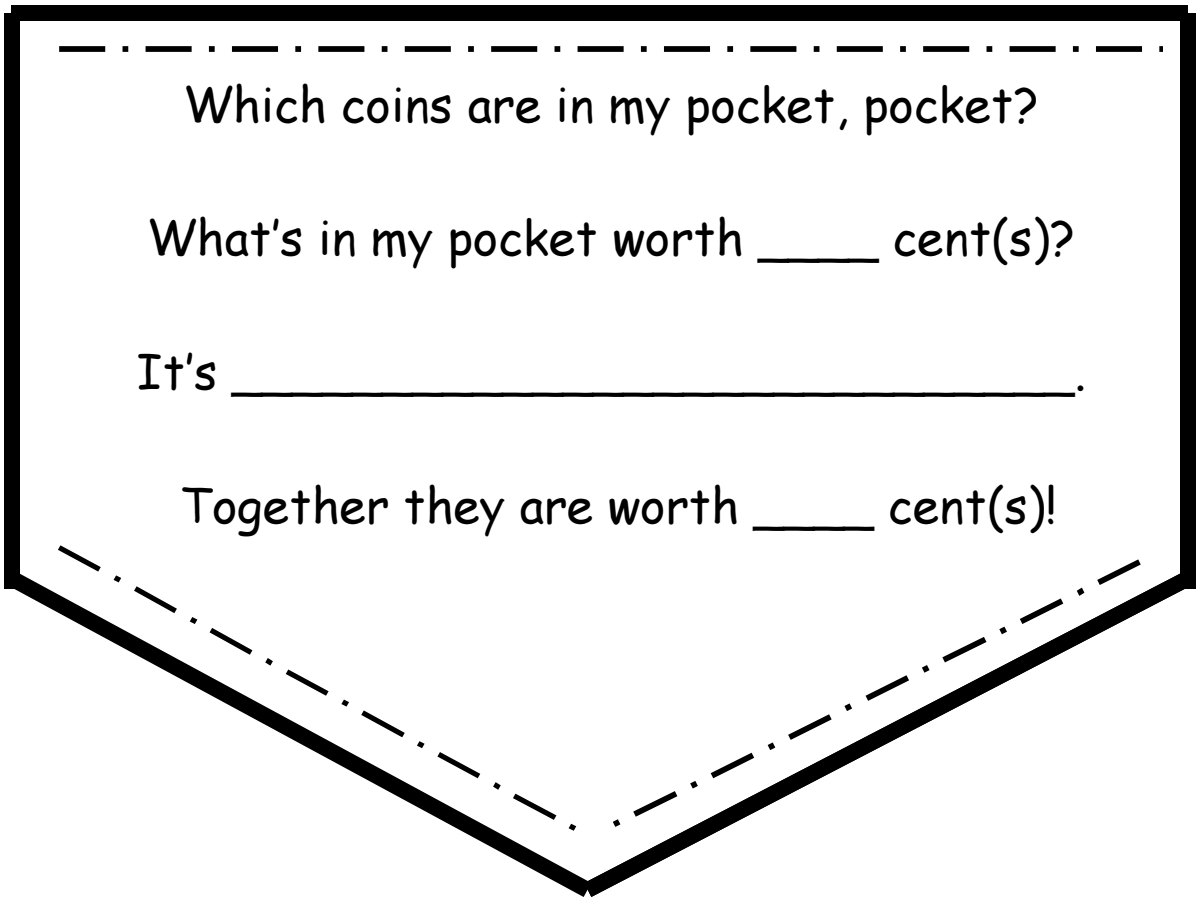
4._____¢ + _____¢ = _____¢
1st roll value 1st roll value sum

5._____¢ + _____¢ = _____¢
1st roll value 1st roll value sum

6._____¢ + _____¢ = _____¢
1st roll value 1st roll value sum

Variation on
The Pocket Song

(Sung to the tune of "Shortnin' Bread")

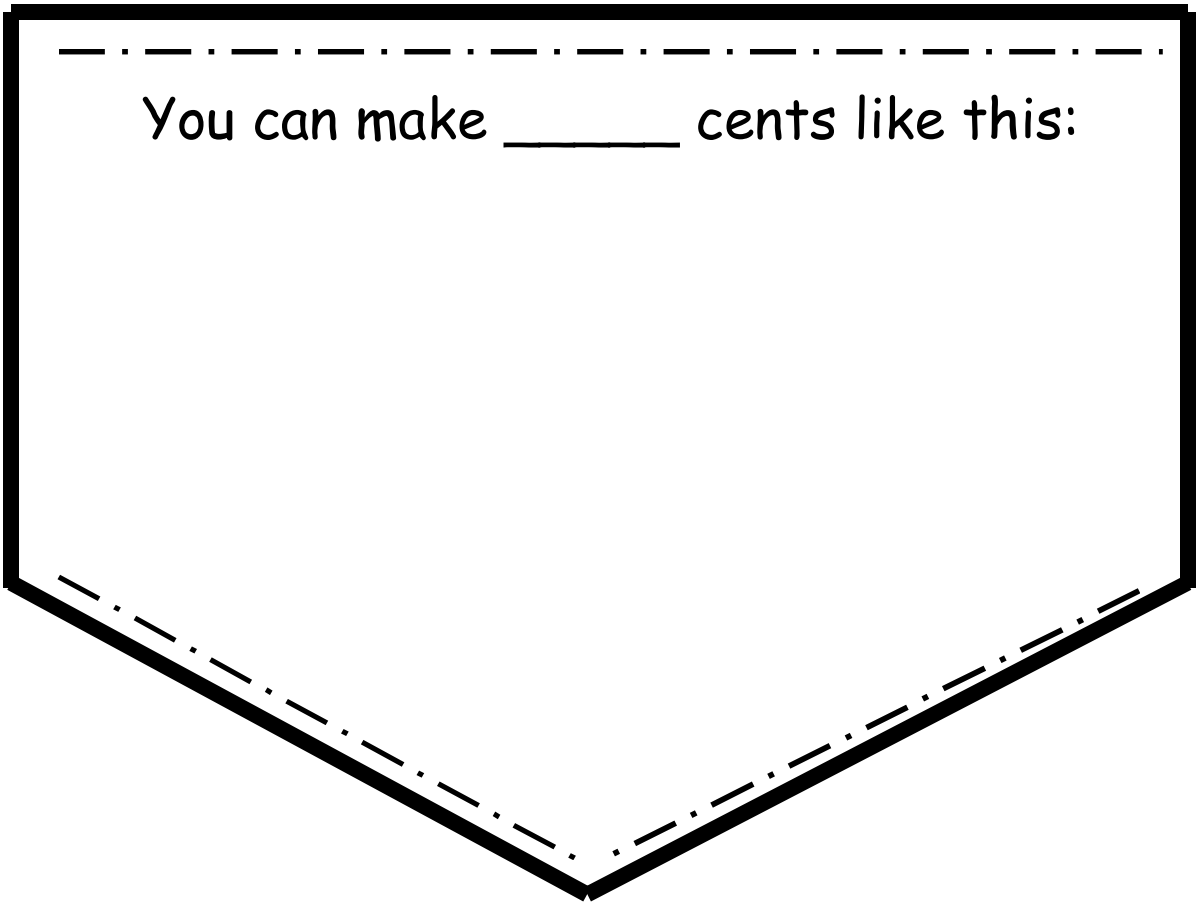


- Fill in the first blank for the students (i.e. 25 cents).
- Fill in the next blank with the coins the students come up with that equal the prescribed value.
- When you sing it, it could sound something like this:

  Which coins are in my pocket, pocket?
  What in my pocket worth 25 cents?
  It's two dimes and a nickel.
  Together they are worth 25 cents.

**Idea: Put the song up on chart paper and play with it many times before challenging students to do their own independently.

Pocket Pattern for Collections Book:



Students can use this pattern to make collaborative books.

- Let students fill in the book pages, using their own drawings, stamps or stickers.
- Allow advanced students to make collections for a larger value.
- Accommodate for emergent learners by giving them actual coins to manipulate as they decide which ones they'll need for their page.

Name_____

Count These Coins

Directions: Read each math sentence. Add the coins. Write the total value as the sum. Do your best work!

1.  +  +  +  =_____¢

2.  +  +  =_____¢

3.  +  +  =_____¢

4.  +  +  +  =_____¢

How Big is a Foot?

Math Standard IV:
Students will understand and use simple measurement tools and techniques.

Objective 1:
Identify measurable attributes of objects and units of measurement.

Intended Learning Outcomes:
2. Develop social skills and ethical responsibility.
6. Communicate clearly in oral, artistic, written, and nonverbal form.

Content Connections:
Content II-3, III-1; Language Arts VII-6

Math Standard IV

Objective 1

Connections

Background Information

This activity is designed to introduce nonstandard measurement. It also provides practice with estimating and measuring lengths using a variety of nonstandard units. The book, *How Big Is A Foot?*, poses a question to the students that provides them with a chance to problem solve, using nonstandard units (their own foot patterns).

You will need to sort your students into cooperative groups of five or six to prepare for this activity. Choose students that will work together and help one another to stay on task. Also, choose one student for each group that has larger feet and one student that has small feet, in comparison.

Since this is an activity that requires the students to work in cooperative groups, you may want to prepare them beforehand. Teach students how to work cooperatively prior to this activity by discussing and showing what it should look like and sound like. Then, provide one or two activities/tasks that give them the chance to practice before beginning this activity.

Finally, this activity allows the students a chance to participate in a narrative mime. Experience with narrative mime is not necessary in order to participate. You will need to discuss the procedure for the narrative mime, however. You also might want to gather props/minor costume pieces for the students to wear.

Invitation to Learn

Read *How Big Is A Foot?* to the page where the question is posed, "Why was the bed too small for the queen?"

Instructional Procedures

Materials

- ❑ *How Big Is A Foot?*
- ❑ Construction paper
- ❑ *The Apprentice's Problem* narrative mime scrips
- ❑ Measuring worms
- ❑ Costume pieces (e.g., crowns, various hats to distinguish a Prime Minister, Chief Carpenter and Apprentice)
- ❑ *Guess and Measure* worksheet for each student

Today, we started reading the story, *How Big Is a Foot?*, by Rolf Myller. It is about a king who thinks of a lovely present to give his wife, the queen. But, there's a problem with the present. Together, we will work to figure out what the problem is and predict what will happen with the king and his gift to the queen. Finally, we will find out what the characters actually did to solve the problem.

1. Explain to the students that in order to solve the apprentice's problem, they are going to act out the story and try to find out what went wrong.
2. Put students in their cooperative groups and assign each child a role out of the following parts: King, Queen, Prime Minister, Chief Carpenter, Apprentice and, if needed, Jailer. As you assign roles, be aware that the King and Queen have the most lines. You may want to assign those parts to students who are uninhibited and pay attention well.
3. Explain the procedure for a narrative mime. The storyteller/ narrator (teacher or student with fluent reading skills) reads the story. The storyteller will cue each actor for his lines by reading them first. For example, the storyteller will read, "'Good question,' said the Prime Minister." Then, each child playing the part of Prime Minister will echo, "Good question."
4. Read through *The Apprentice's Problem* (p. 8-29). Prompt students to participate, verbally and nonverbally, on cue as needed. They can quietly act out some of the action. You will probably want to have each group spread out to different corners of the room.
5. When you come to the end of the script, pass out construction paper, pencils and scissors to each group. Tell them to trace the "King's" foot and the "Apprentice's" foot in each group. Then, invite them to trace and cut eight more of each foot so that there are nine "King" feet and nine "Apprentice" feet. Students playing the parts of the Prime Minister, Chief Carpenter and Queen can help in tracing and cutting.
6. Have each group lay out their "King" feet to create a 3 by 6 diagram on the floor. Do the same with the "Apprentice" feet.
7. Ask the question, "Why was the bed too small for the queen?"
8. As students give their answers, ask them for a prediction of how the characters in the book might solve the problem.

9. Finish reading the rest of the book. Refer back to the class prediction. Were we right? Did it work?
10. Pass out construction paper. Invite each child to trace copies of their own foot. Then, have them find a partner to measure using their own foot to see how many feet long and wide their bed should be.
11. Students take their own foot pattern home and measure their bed to see if it is the same, bigger or smaller than their body measurement in their own nonstandard feet units (see *Family Connections*).
12. As a center or whole class activity, invite students to estimate the lengths of objects in the classroom, based on their foot measurement. Provide students with the *Guess and Measure* worksheet (p. 8-30) to record their estimates and actual lengths. When the page is complete, staple the foot measurement to it.
13. Provide a new nonstandard unit to measure by (e.g., measuring worms). Invite students to complete a new *Guess and Measure* worksheet (p. 8-31) with this alternative unit.
14. Have a discussion with the students comparing and contrasting the worm and foot units of measurement. Ask the students to give examples of which objects might be best measured by a foot (e.g., a table, the chalkboard tray, etc.) and which objects they would choose to measure with a worm (e.g., a crayon, scissors, a piece of paper, etc.).

Possible Extensions/Adaptations/Integration

- Plan your plant unit to integrate with this measurement lesson.
  1. Examine the differing sizes of seeds. Use seeds as a nonstandard measurement.

     Example: How many pumpkin seeds long is your pencil?
  2. Plant seeds (e.g., lima beans). As the plant begins to sprout, measure its growth with a nonstandard measure (e.g., seeds or worms).
  3. Measure the leaves of different types of plants with seeds/worms.
  4. Have each student create a discovery journal
     a. Students can record observations of grown plants in the classroom.
     b. Students can record the growth progress of their own plants.

- Write about nonstandard measurement units, estimations, and experiences for interactive writing.
- Encourage students to write their own stories about measuring things with various nonstandard units.
- Accommodate for emergent learners by allowing them to work as pairs on the *Guess and Measure* worksheet. You may even want to reduce the number of objects you require them to measure.
- Differentiate for advanced learners by introducing them to standard measurement. Encourage them to complete the *Guess and Measure* worksheet using inches/centimeters.
- Write your own narrative mime script for the second half of the book and allow students to perform it in cooperative groups for one another.
- Make a T-chart and lay it on the floor. At the top, put a nonstandard foot unit on one side and a worm unit on the other. Provide the students with objects and have them sort the objects by which unit of measure would be most appropriate to measure them by.

Assessment Suggestions

- Use the *Guess and Measure* worksheet as an assessment to see if the students are able to estimate with and use the worms or their own feet as units of measure.
- Observe students as they measure with their feet and worms, etc.
- Ask the students to discuss in writing the length of a given object in foot units or worm units. Ask them to tell how they know whether to use the foot or the worms to measure something.

Additional Resources

Books

How Big Is A Foot?, by Rolf Myller; ISBN 0-440-40495-9

The Long and Short of It, by Cheryl Nathan and Lisa McCourt; ISBN 0-8167-5609-0

The Fattest, Tallest, Biggest Snowman Ever, by Bettina Ling; ISBN 0-590-97284-7

Inch by Inch, by Leo Lionni; ISBN 0-590-47991

Jim and the Beanstalk, by Raymond Briggs; ISBN 0-698-11577-5

Inchworm And A Half, by Elinor J. Pinczes; ISBN 0-439-44710-0

Web sites

http://www.teachers.net

http://www.aplusmath.com

http://www.ilovethatteachingidea.com

Family Connections

- Have students measure their own beds with the nonstandard foot measurement they created in class.
- Invite family members to trace their feet. Let the family decide which member's foot would need to serve as the "King" foot so that everyone has a bed that is big enough.
- Send bean plants home and require the students to keep a measurement log for a week, tracking the continued growth (or nor lack of growth) of the plant. When logs are returned to school, discuss what factors promoted or hindered the growth of the plants.

The Apprentice's Problem

A Narrative Mime based on Rolf Myller's
How Big Is A Foot?
Adapted for Narrative Mime

Cast

KingQueen**Prime Minister**Chief Carpenter**Apprentice**Optional: Jailer**

Script

Storyteller: Once upon a time there lived a King and his wife, the Queen. They were a happy couple for they had everything in the world. In fact, the king and queen often said, "We are so happy!"

King and Queen: We are so happy!

Storyteller: However, when the Queen's birthday came near the King had a problem. The Queen happily sang, "My birthday is coming soon!"

Queen: My birthday is coming soon!

Storyteller: The King wondered out loud to himself, "What can I give to someone who has everything?"

King: "What can I give to someone who has everything?"

Storyteller: The King thought and he thought and he thought. Until suddenly, he had an idea! "I will give the Queen a bed!" he said.

King: I will give the Queen a bed!

Storyteller: The Queen did not have a bed because at the time beds had not been invented. So even someone who had everything did not have a bed. The King called his Prime Minister and said, "Please have a bed made."

King: Please have a bed made.

Storyteller: The Prime Minister called the Chief Carpenter and said, "Please have a bed made."

Prime Minister: Please have a bed made.

Storyteller: The Chief Carpenter called the apprentice and said, "Please have a bed made."

Chief Carpenter: Please have a bed made.

Storyteller: The apprentice didn't know how big a bed was because at the time nobody had ever seen a bed. "How big is a bed?" he asked.

Apprentice: How big is a bed?

Storyteller: The Carpenter asked the Prime Minister, "How big is a bed?"

Prime Minister: How big is a bed?

Storyteller: The Prime Minister thought that was a good question. So, he asked the King, "How big *is* a bed?"

Prime Minister: How big *is* a bed?

Storyteller: The King thought and he thought and he thought. Suddenly he had an idea! "The bed must be big enough for the Queen!" he said.

King: The bed must be big enough for the Queen!

Storyteller: The King called to the Queen. He said, "Put on your new pajamas and lie on the floor."

King: Put on your new pajamas and lie on the floor.

Storyteller: The King took off his shoes and with his big feet walked carefully around the Queen. He counted that the bed must be three feet wide and six feet long to be big enough for the Queen, including the crown, which the Queen sometimes liked to wear to sleep. The king said "Thank you" to the Queen.

King: Thank you!

Storyteller: Then, the king told the Prime Minister, who told the Chief Carpenter, who told the apprentice: "The bed must be three feet wide and six feet long."

Chief Carpenter: The bed must be three feet wide and six feet long.

Storyteller: The apprentice said, "Thank you."

Apprentice: Thank you.

Storyteller: He took off his shoes and with his little feet he measured three feet wide and six feet long and made a bed to fit the Queen. When the king saw the bed, he thought it was beautiful. He could not wait for the Queen's birthday. Instead he called the Queen at once and said, "Put on your new pajamas."

King: Put on your new pajamas.

Storyteller: Then he brought out the bed and said to the Queen, "Try it."

King: Try it.

Storyteller: But, the bed was much too small for the Queen. She whined, "It's much too small!"

Queen: It's much too small!

Storyteller: The King was so angry that he immediately called the Prime Minister who called the Chief Carpenter who called the jailer. And, the jailer threw the apprentice in jail. "You've got to go to jail!" said the jailer.

Jailer: You've got to go to jail!

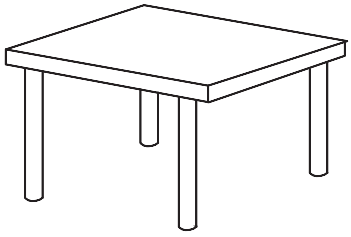
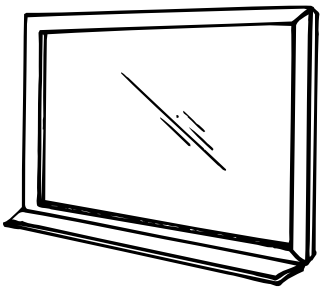
Storyteller: The apprentice was unhappy. Why was the bed too small for the Queen?

Name _____

Guess and Measure

Directions

For each object listed below, make a guess of how many of your feet long the object will be. Then, measure it and write the actual length in the space provided. Do not change your estimate!

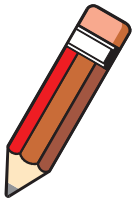
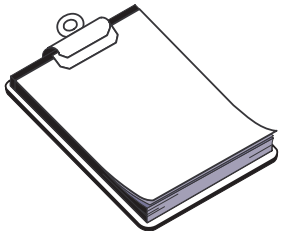
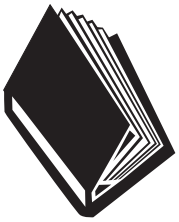
Object	Estimate	Actual
	_____ my feet	_____ my feet
	_____ my feet	_____ my feet
	_____ my feet	_____ my feet

Name _____

Guess and Measure

Directions

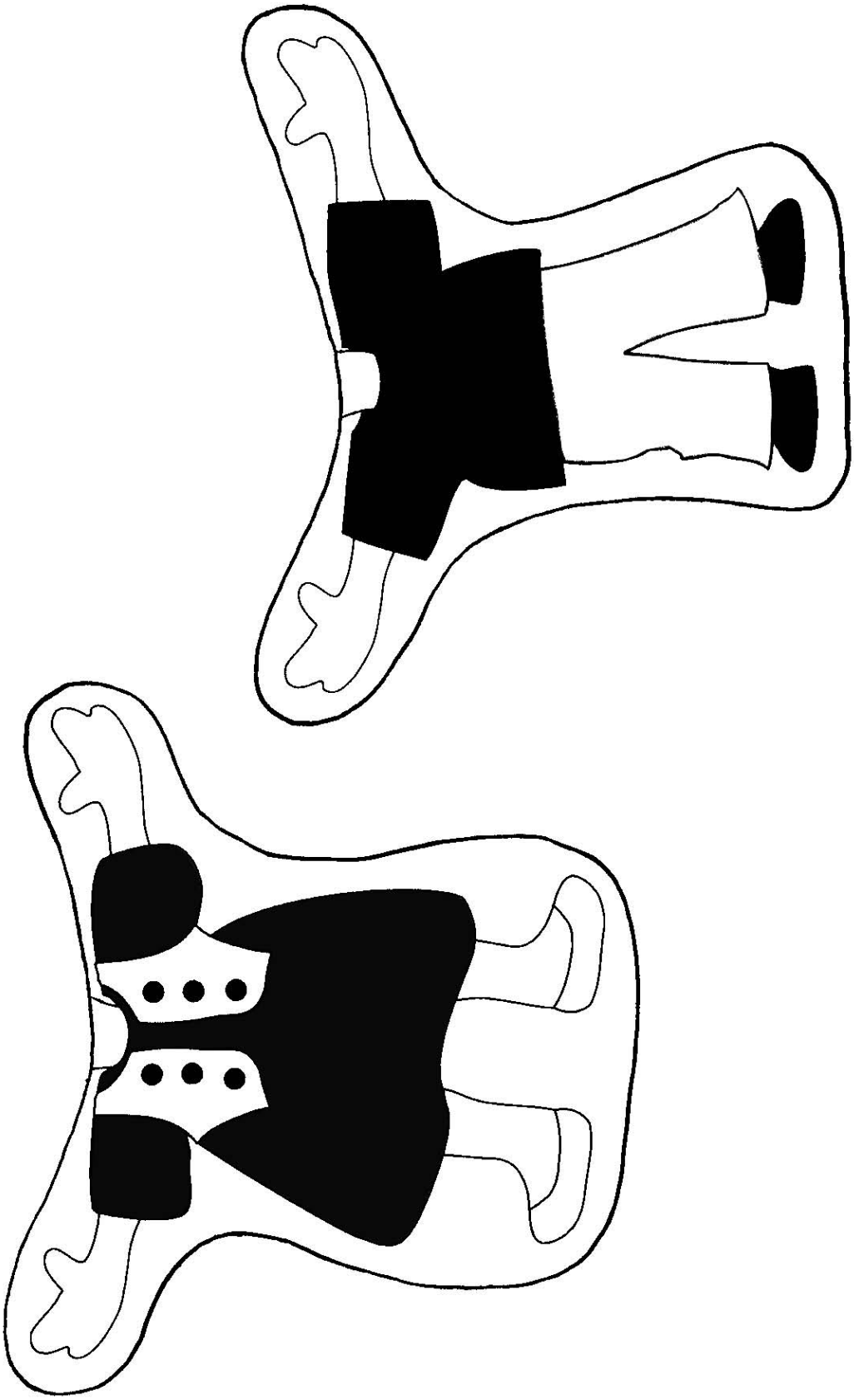
For each object listed below, make a guess of how many of worms long the object will be. Then, measure it and write the actual length in the space provided. Do not change your estimate!

Object	Estimate	Actual
	_____ worms	_____ worms
	_____ worms	_____ worms
	_____ worms	_____ worms
	_____ worms	_____ worms

Appendix

Flag Page

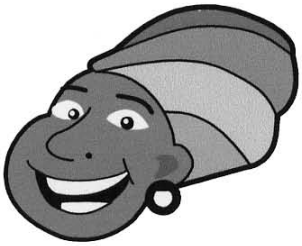
Boy and Girl



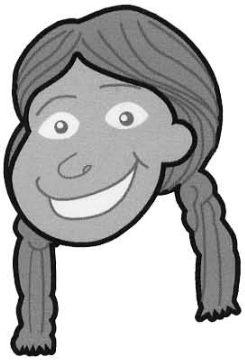
Students in Our Country





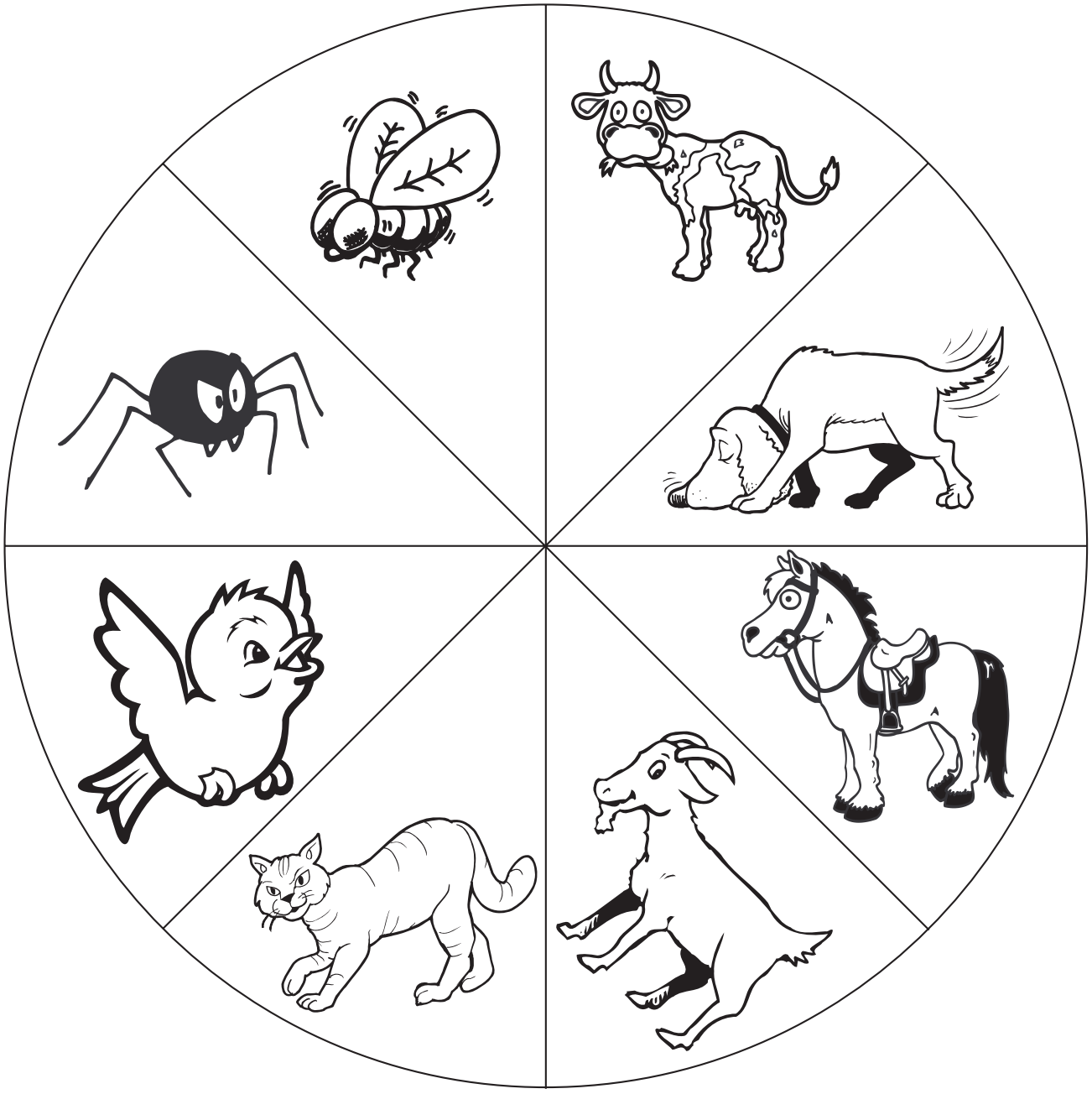




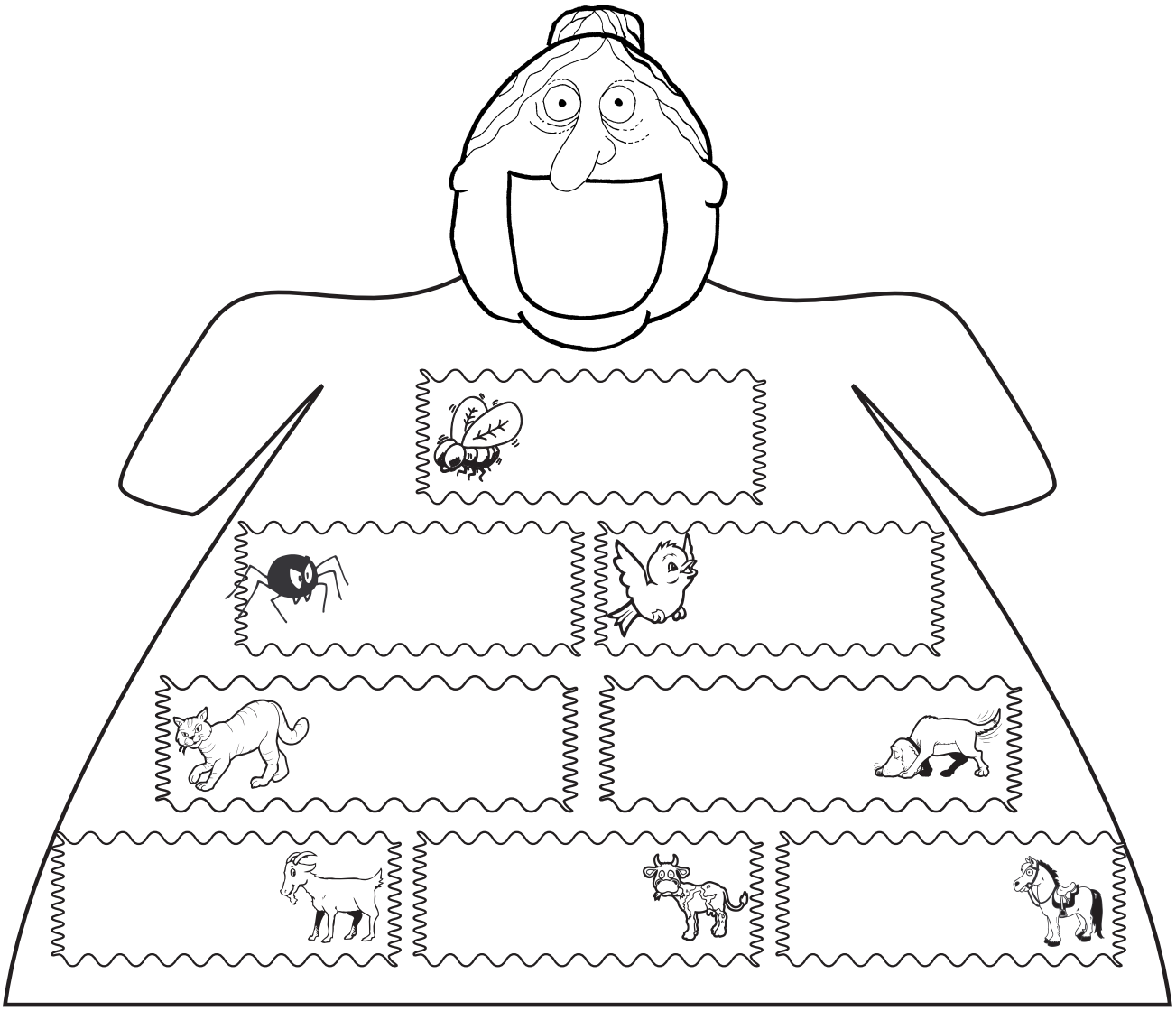
Name _____

The Old Lady Probability Spinner



Name _____

The Old Lady Data Collection Sheet



Name _____

The Old Lady Graph #1

10								
9								
8								
7								
6								
5								
4								
3								
2								
1								
	Fly	Spider	Bird	Cat	Dog	Goat	Cow	Horse

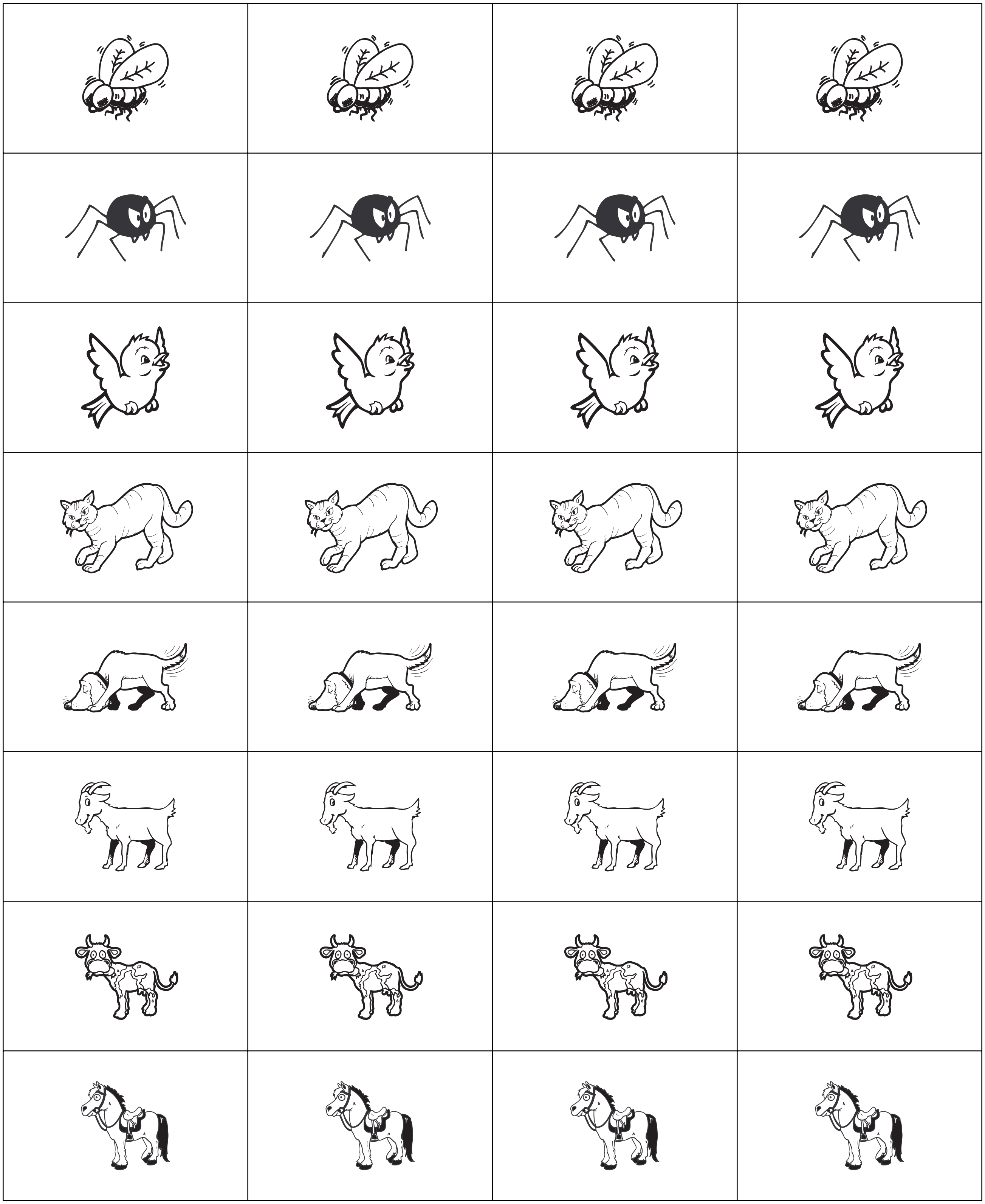
Name _____

The Old Lady Graph #2

Fly										
Spider										
Bird										
Cat										
Dog										
Goat										
Cow										
Horse										
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**

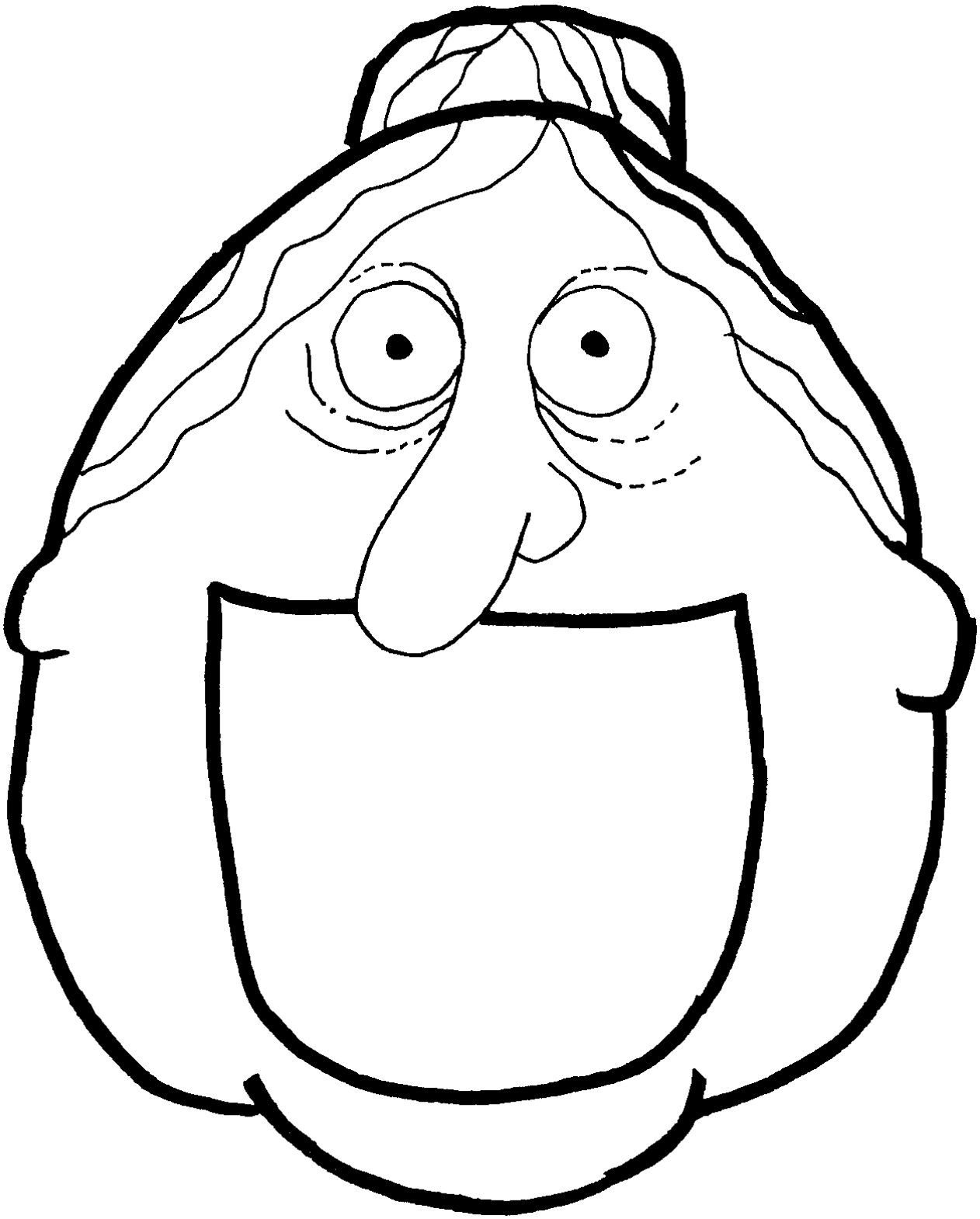
Name________________________________

The Old Lady Animal Cards



Name _____

The Old Lady Puppet

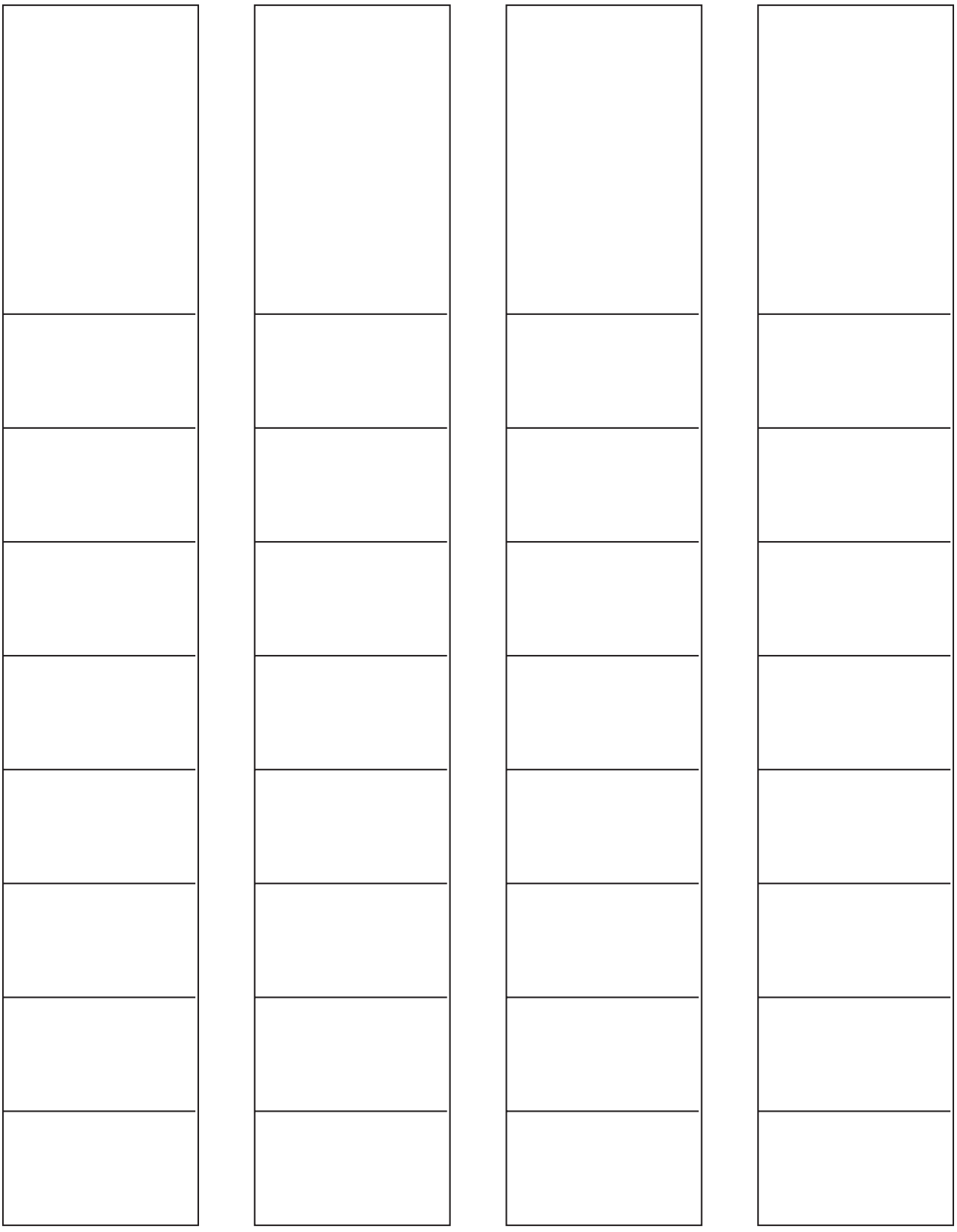


Name _____

The Old Lady Prediction Sheet

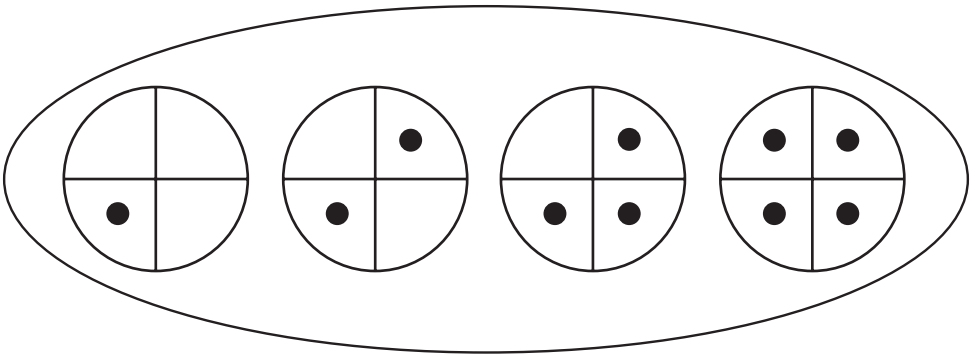
	What is your prediction?	What did you choose?	Were you right?
#1			yes no
#2			yes no
#3			yes no
#4			yes no
#5			yes no
#6			yes no
#7			yes no

Number Strips



Name _____

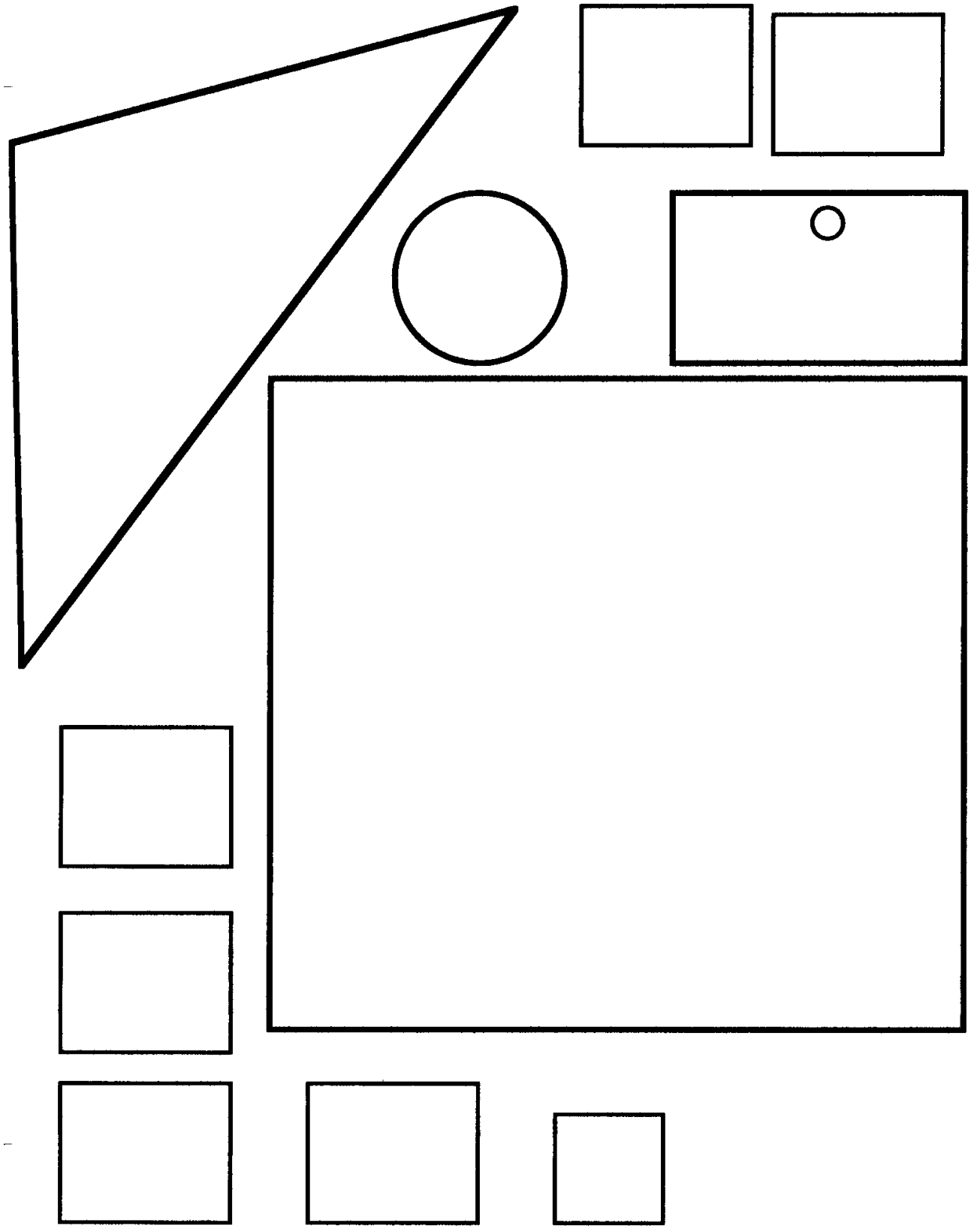
Lu-Lu Stones



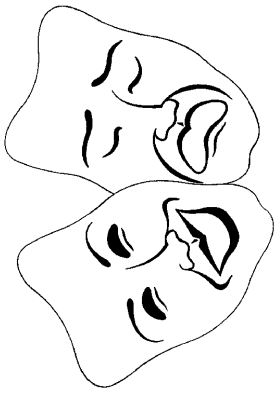
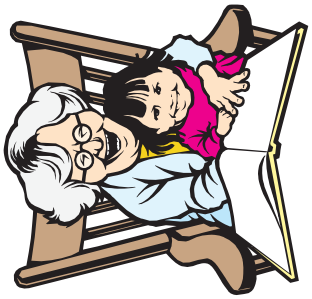
With Lu-Lu stones can you get any of these scores? Show how.

0	**8**
1	**9**
2	**10**
3	**11**
4	**12**
5	**13**
6	**14**
7	**15**

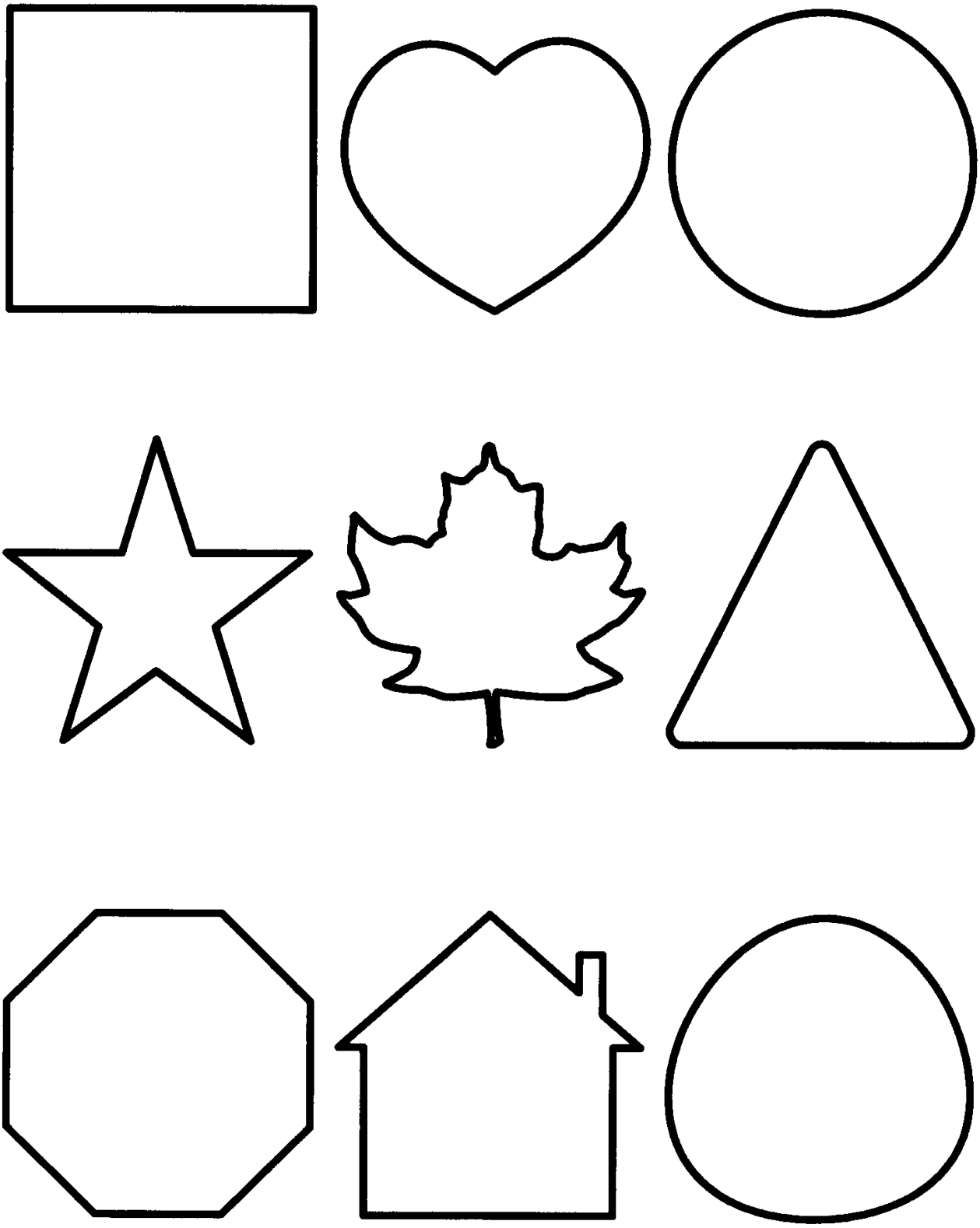
Family Task Puzzle



Create-A-Log Coupons

Drama Coupon 	**Poetry Coupon** 	**Dance Coupon** 
Music Coupon 	**Art Coupon** 	**Storytelling Coupon** 

Symbol Cards

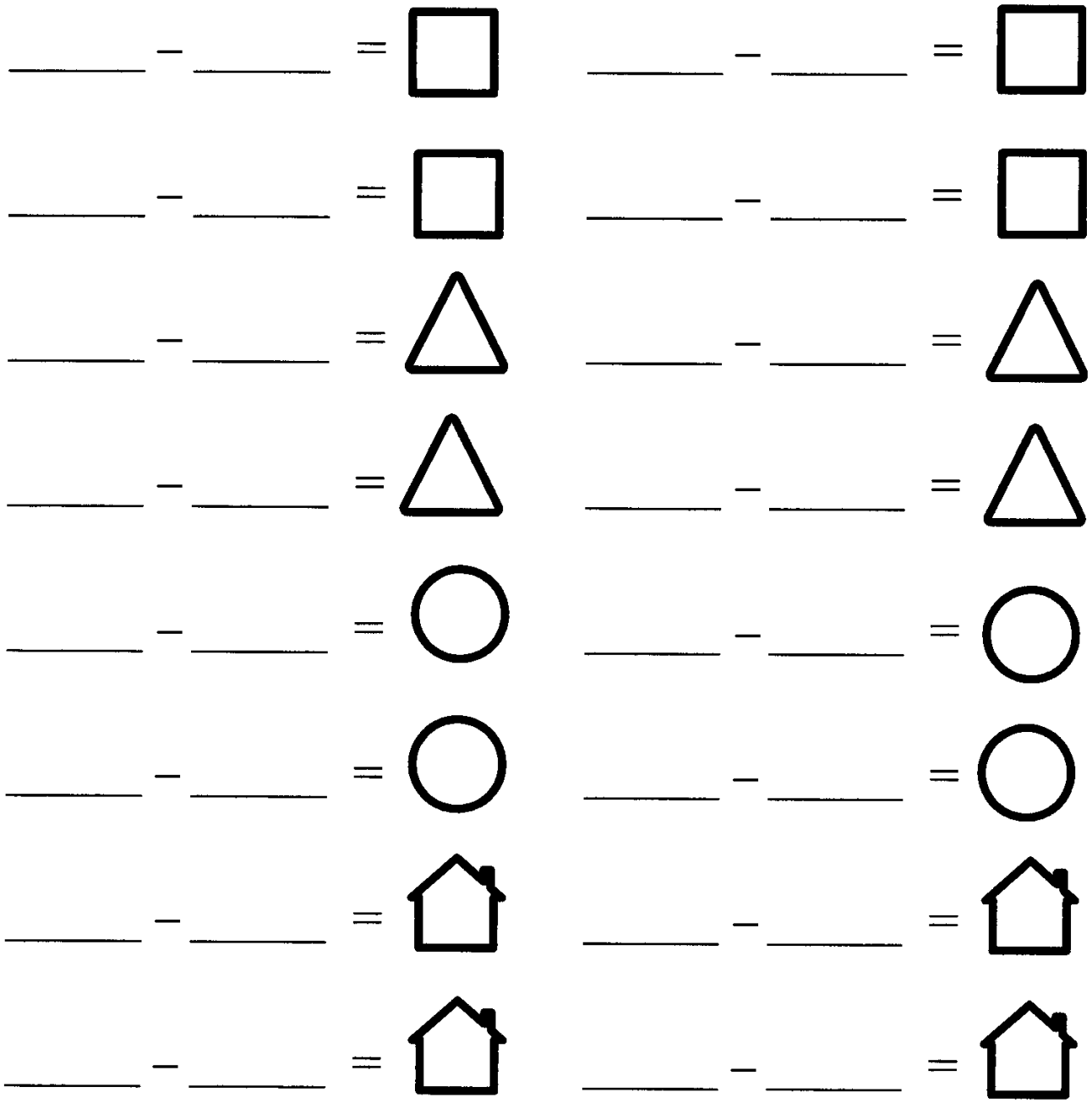


Number Cards

0	1	2
3	4	5
6	7	8
9		

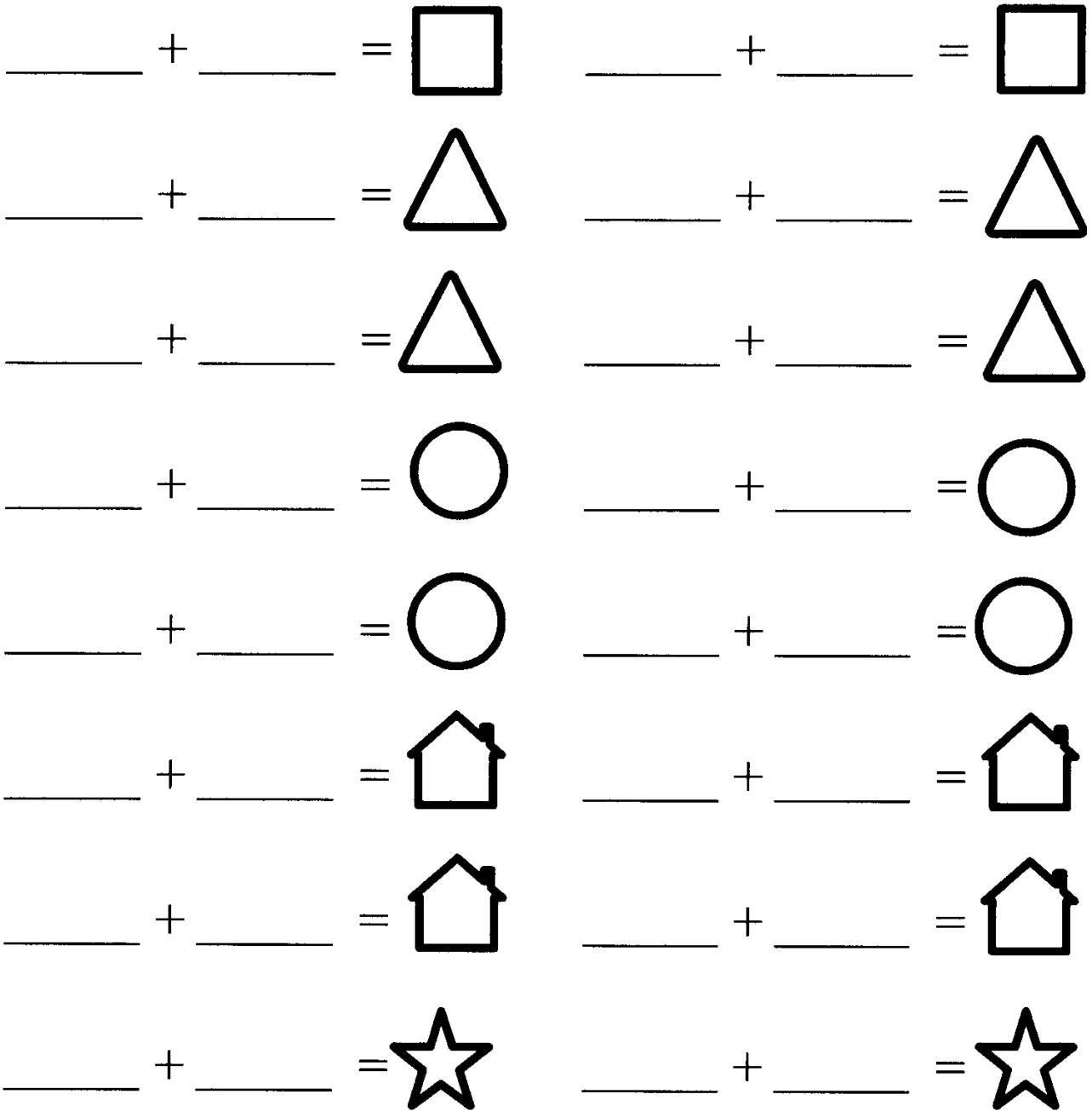
Name _____

Missing Number – Subtraction



Name _____

Missing Number – Addition



Name _____

Same and Different

shape	**shape**
picture	**picture**

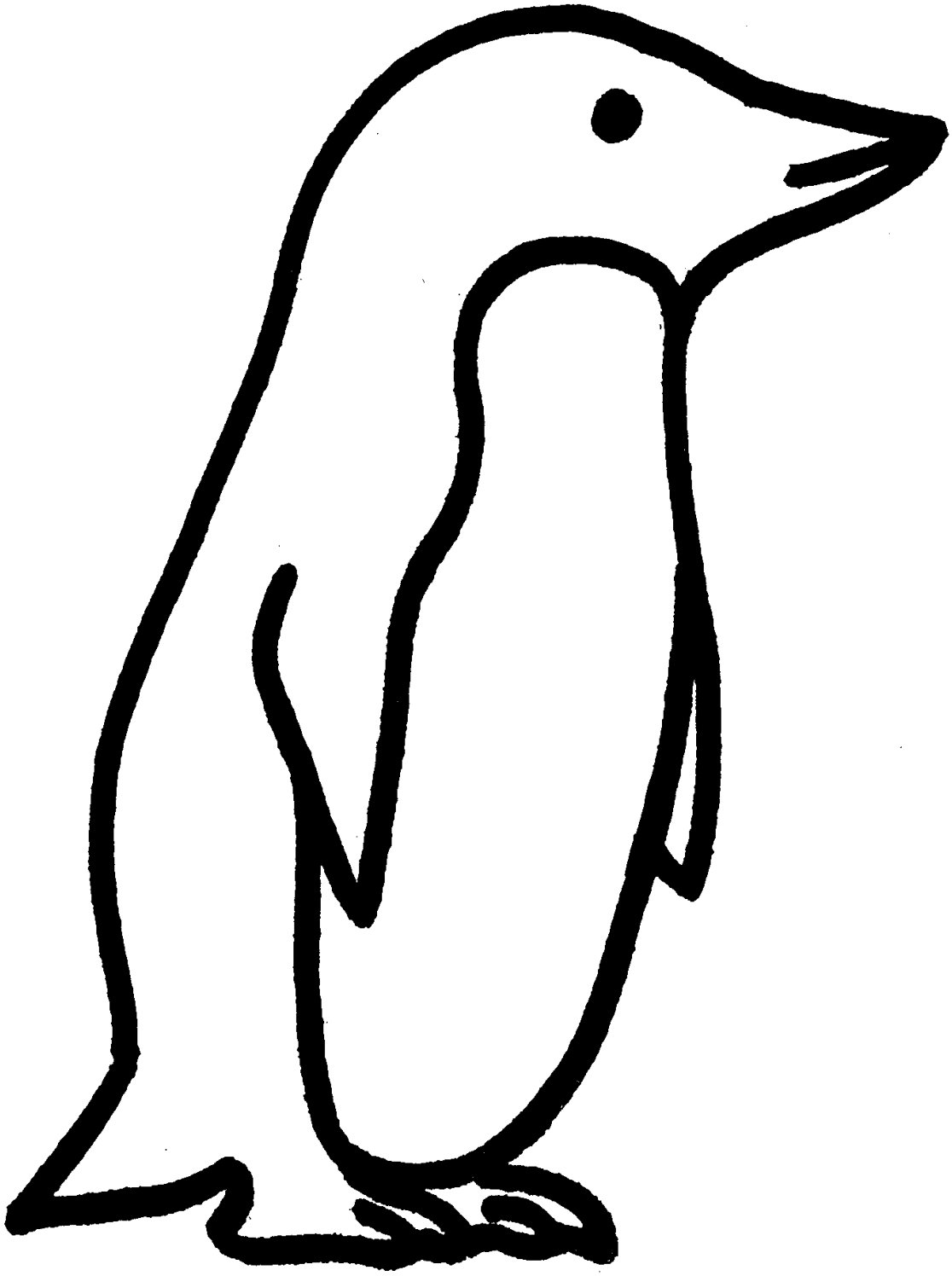
The _____ is like a _____.

It is not like a _____because it has _____

_____.

Problem Solving Process Cards

Ticky the Penguin



1

Ticky the Penguin lives in Utah. He has received a post card from his cousin Tacky in Antarctica. Ticky wants to go see him.

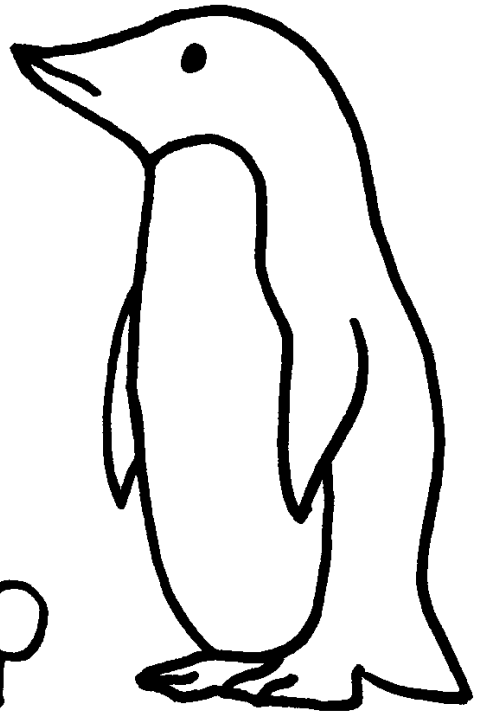
Ticky has discovered where Antarctica is located on the map. Ticky needs to get to the Atlantic Ocean so that he can go to Antarctica.

How will he get from Utah to the Atlantic ocean?

2

Think and Remember...

What is Ticky's problem?



3

Fact Finding....

who?

what?

where?

4

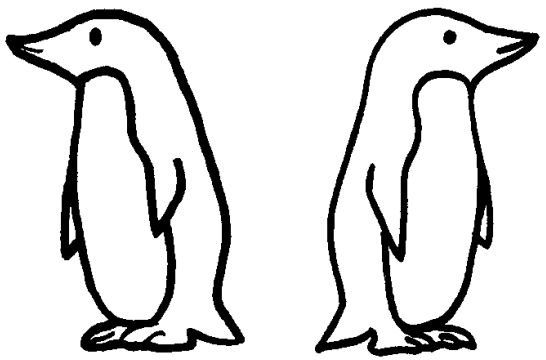
Idea Finding....

Think of 5 or more ways he can solve his problem....

5

Solution Finding....

Will it work?



Will it make Ticky happy?

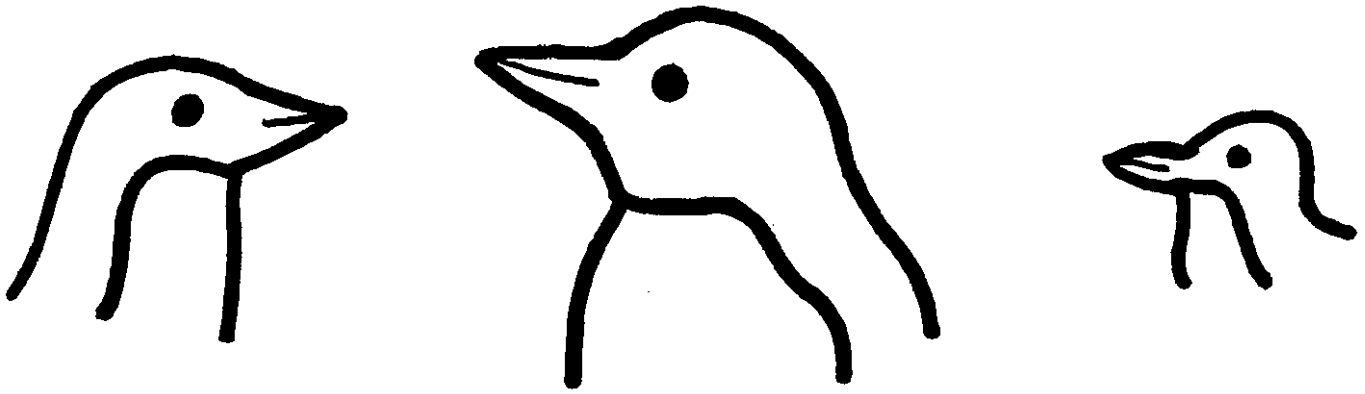
Will it?....

6

Ticky decided to...

7

Which penguin would you like to visit?



Adelie

Emperor

Blue Fairy

Graph Labels

Adelie

Emperor

Blue

Fairy

Palm Pocket Cards

1	2	3	4
5	6	7	8
9	0	¢	
penny 	nickel 	dime 	quarter 

Palm Pockets

penny
nickel
dime
quarter

Name_____

Tally Them Up!

Which coin is which? Roll your money cube 25 times. Put a tally mark in the correct box to show which coin you roll each time. Then, count up your tally marks.

Coin	Tally Marks	Total
penny		
nickel		
dime		
quarter		

Which coin did you roll the most? _____

Which coin did you roll the least? _____

Which coin are you more likely to roll? _____

Which coin are you less likely to roll? _____

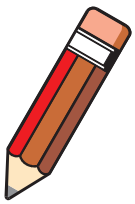
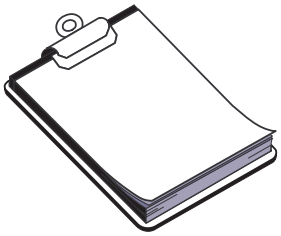
Are you equally likely to roll any coins? = _____

Name _____

Guess and Measure

Directions

For each object listed below, make a guess of how many of worms long the object will be. Then, measure it and write the actual length in the space provided. Do not change your estimate!

Object	Estimate	Actual
	_____ worms	_____ worms
	_____ worms	_____ worms
	_____ worms	_____ worms
	_____ worms	_____ worms